PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0382
DESIGNED BY McCormick Taylor, Inc.

FOR INDEX OF SHEETS SEE SHEET 1B

THIS PROJECT WAS DEVELOPED UTILIZING THE DEPARTMENT'S ENGINEERING DESIGN PACKAGE (GEOPAK).
GEOPAK Computer Identification No. (UPC 103008)

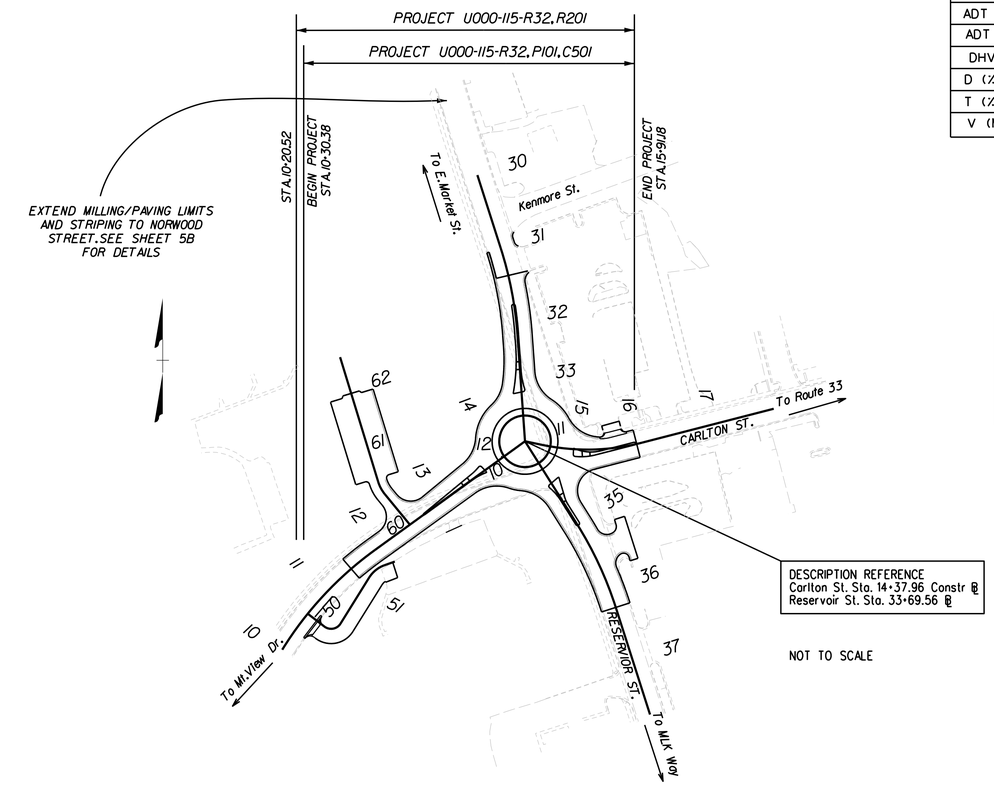
CITY OF HARRISONBURG
DEPARTMENT OF PUBLIC WORKS

PLAN AND PROFILE OF PROPOSED CARLTON STREET IMPROVEMENTS

Fr: 0.08 Mi. W. Route 710
To: 0.06 Mi. E. Route 710

CONVENTIONAL SIGNS

STATE LINE	
COUNTY LINE	
CITY,TOWN OR VILLAGE	
RIGHT OF WAY LINE	
FENCE LINE	
UNFENCED PROPERTY LINE	
FENCED PROPERTY LINE	
WATER LINE	
SANITARY SEWER LINE	
GAS LINE	
ELECTRIC UNDERGROUND CABLE	
TRAVELED WAY	
GUARD RAIL	
RETAINING WALL	
RAILROADS	
BASE OR SURVEY LINE	
LEVEE OR EMBANKMENT	
BRIDGES	
CULVERTS	
DROP INLET	
POWER POLES	
TELEPHONE OR TELEGRAPH POLES	
TELEPHONE OR TELEGRAPH LINES	
HEDGE	
TREES	
HEAVY WOODS	
GROUND ELEVATION	
GRADE ELEVATION	



DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DEPARTMENT'S 2007 ROAD AND BRIDGE SPECIFICATIONS, 2008 ROAD AND BRIDGE STANDARDS, 2009 MUTCD, 2011 VIRGINIA SUPPLEMENT TO THE MUTCD, 2011 VIRGINIA WORK AREA PROTECTION MANUAL AND AS AMENDED BY CONTRACT PROVISIONS AND THE COMPLETE ELECTRONIC PDF VERSION OF THE PLAN ASSEMBLY.

Population 49,973 (2011 Census)

STATE PROJECT NO.	SECTION	FEDERAL AID PROJECT NO.	TYPE CODE	PPMS NO.	LENGTH INCLUDING BRIDGE(S) FEET	LENGTH INCLUDING BRIDGE(S) MILES	LENGTH EXCLUDING BRIDGE(S) FEET	LENGTH EXCLUDING BRIDGE(S) MILES	TYPE PROJECT	DESCRIPTION
U000-115-R32	P101			103008	1100.9	0.21	1100.9	0.21	Prel.Eng.	Fr: 0.08 Mi. W. Route 710 To: 0.06 Mi. E. Route 710
	R201			103008	1110.7	0.21	1110.7	0.21	Right of Way	Fr: 0.08 Mi. W. Route 710 To: 0.06 Mi. E. Route 710
	C501			103008	1100.9	0.21	1100.9	0.21	Construction	Fr: 0.08 Mi. W. Route 710 To: 0.06 Mi. E. Route 710

Project Lengths are based on Carlton Street and Reservoir Street Construction Baselines.

STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.			U000 - 115 - R32, P101, R201, C501 (SEE TABULATION BELOW FOR SECTION NUMBERS)	1

FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA	
CARLTON STREET : URBAN LOCAL (GS-8)-ROLLING-30 MPH DESIGN SPEED	
	Fr: 0.08 Mi. W. Int. Route 710 (Reservoir Street) To: 0.06 Mi. E. Int. Route 710 (Reservoir Street)
ADT (2011)	4,800
ADT (2036)	7,000
DHV	865
D (%) (design hour)	36%
T (%) (design hour)	2%
V (MPH)	*
RESERVOIR ST : URBAN COLLECTOR(GS-7)-ROLLING-30 MPH DESIGN SPEED	
	Fr: 0.06 Mi. N. Int. Carlton Street To: 0.04 Mi. S. Int. Carlton Street
ADT (2011)	12,300
ADT (2036)	17,800
DHV	1620
D (%) (design hour)	51.2%
T (%) (design hour)	1%
V (MPH)	*

*See Plan and Profile Sheets for horizontal and vertical curve design speed

CONSTRUCTION PLANS
January 13, 2015

REVISED

LOCALLY ADMINISTERED PROJECTS	
CITY OF HARRISONBURG	
JAMES D. BAKER	
RECOMMENDED FOR APPROVAL FOR RIGHT OF WAY ACQUISITION	
DATE	DIRECTOR OF PUBLIC WORKS
JAMES D. BAKER	
RECOMMENDED FOR APPROVAL FOR CONSTRUCTION	
DATE	DIRECTOR OF PUBLIC WORKS

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600 _____.
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc. _____.

LOCATION MAP

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32; C501	1A

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

LOCATION MAP		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 1A

PROJECT MANAGER Kimberly Cameron, P.E. 540-434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600 _ _ _ .
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc. _ _ _ _ _ .

INDEX OF SHEETS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32; C501	IB

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

TOTAL CROSS SECTION SHEETS: 13 (SEE CROSS SECTION SHEET NUMBER 1 FOR INDEX OF SHEETS)

INDEX OF SHEETS		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 1B

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600 _ _ _.
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc. _ _ _ _ _.

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, C501	1C

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

City/County: Harrisonburg

UPC No.: 103008

PRELIMINARY
RIGHT OF WAY DATA SHEET

PARCEL NO.	LANDOWNER	SHEET NO.	AREA							EASEMENTS								PROFFERS
			TOTAL	FEE TAKING		PRESCRIPTIVE R/W		FEE REMAINDER		PERMANENT		UTILITY		TEMPORARY		TEMPORARY(ENTRANCES)		
			ACRES OR SQUARE FEET	ACRES OR SQ. FEET	HECTARES/ OR SQ. METERS	ACRES OR SQ. FEET	HECTARES/ OR SQ. METERS	ACRES OR SQ. FEET	HECTARES/ OR SQ. METERS	ACRES OR SQ. FEET	HECTARES/ OR SQ. METERS	ACRES OR SQ. FEET	HECTARES/ OR SQ. METERS	ACRES OR SQ. FEET	HECTARES/ OR SQ. METERS	ACRES OR SQ. FEET	HECTARES/ OR SQ. METERS	YES / NO
001	CITY OF HARRISONBURG SCHOOL BOARD	3	17.0/740,520	0.31/13,479.5		-		16.69/720,041		0.30/12,965.4		0.29/12,834.0		0.95/41,408.0		-		
002	CITY OF HARRISONBURG	3	2.42/105,415	0.04/1,802.1		-		2.38/103,613		-		0.05/2,323.5		0.28/12,062.4		-		
003	CLOVER LEAF SHOPPING CENTER CORP	3	9.89/431,026	0.00/117.2		-		9.89/430,909		-		0.00/148.4		0.06/2,495.3		-		
004	MCDONALD'S CORPORATION	3	1.19/51,924	0.01/377.8		-		1.18/51,546		-		0.05/2,284.9		0.02/1,079.0		-		
005	FORWARD PROPERTIES LLC	3	0.37/15,987	-		-		0.37/15,987		-		0.01/339.2		-		-		

RIGHT OF WAY DATA SHEET

NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 1C

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

REVISION DATA SHEET

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32; C501	ID

State Project: U000-115-R32, P-101, R-201, C-501
Federal Project: N/A
From: 0.08 MI.W.Route 710
To: 0.06 MI.E.Route 710
UPC Number: 103008

DESIGN FEATURES RELATING TO CONSTRUCTION
OR TO REGULATION AND CONTROL OF TRAFFIC
MAY BE SUBJECT TO CHANGE AS DEEMED
NECESSARY BY THE DEPARTMENT

REVISION DATA SHEET		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. ID

PROJECT MANAGER Kimberly Cameron (540)434-5928 (Harrisonburg)
SURVEYED BY NXL Inc.(804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

SURVEY ALIGNMENT DATA

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32; C501	1E

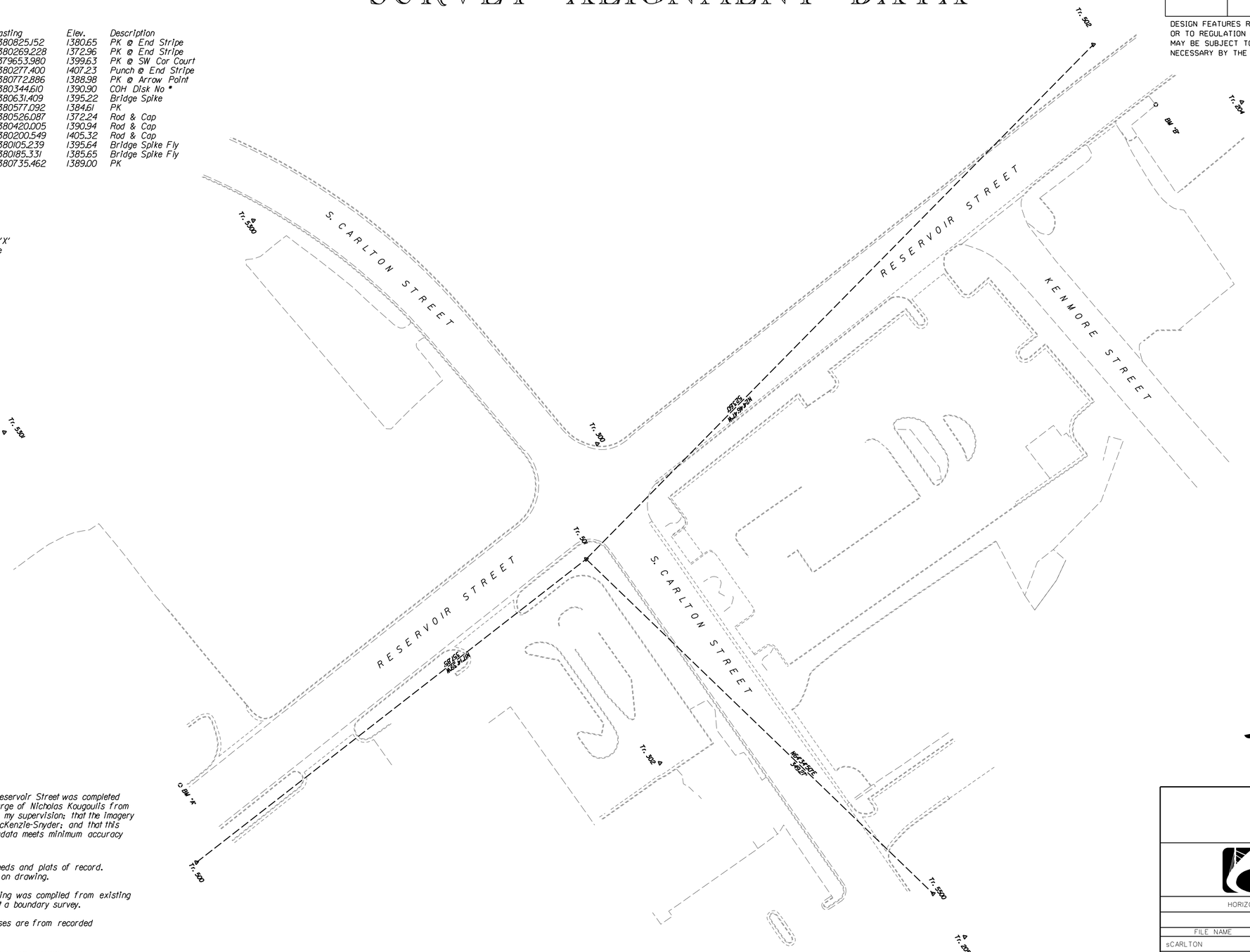
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Control Table

PN	Northing	Easting	Elev.	Description
201	6844285.846	11380825.152	1380.65	PK @ End Stripe
202	6843908.839	11380269.228	1372.96	PK @ End Stripe
203	6844595.766	11379653.980	1399.63	PK @ SW Cor Court
204	6845025.806	11380277.400	1407.23	Punch @ End Stripe
205	6844624.798	11380772.886	1388.98	PK @ Arrow Point
300	6844501.331	11380344.610	1390.90	COH Disk No "
301	6844917.586	11380631.409	1395.22	Bridge Spike
302	6844462.372	11380577.092	1384.61	PK
500	6844122.645	11380526.087	1372.24	Rod & Cap
501	6844464.409	11380420.005	1390.94	Rod & Cap
502	6844939.799	11380200.549	1405.32	Rod & Cap
5300	6844325.065	11380105.239	1395.64	Bridge Spike Fly
5301	6844102.056	11380185.331	1385.65	Bridge Spike Fly
5500	6844614.331	11380735.462	1389.00	PK

Benchmark Table

BM	Elev.	Description
A	1372.69'	Chiseled 'X'
B	1406.16'	RR Spike



This survey of Carlton Street and Reservoir Street was completed under the direct and responsible charge of Nicholas Kougoulis from an actual Ground survey made under my supervision; that the Imagery was obtained on Nov. 21, 2012 by McKenzie-Snyder; and that this digital geospatial data including metadata meets minimum accuracy standards unless otherwise noted.

Property information is based on deeds and plats of record. Physical evidence found was placed on drawing.

The information shown on this drawing was compiled from existing land records and does not represent a boundary survey.

Bearings and distances in parentheses are from recorded plats or deed data.

Subsurface utilities were designated by Miss Utility and located by NXL. NXL is neither responsible for the accuracy nor the completeness of the Miss Utility markings.

Survey of
CARLTON STREET at
RESERVOIR STREET
HARRISONBURG, VIRGINIA
FOR McCORMICK TAYLOR

nxl | Engineers, Surveyors
Construction Managers
114 east cary street, suite 200
richmond, virginia 23219
(804) 644-4600

HORIZONTAL DATUM: VSPCS NZ NAD 83 FT US
VERTICAL DATUM: NAVD 88

FILE NAME	SCALE	DATE	JOB NO.	PM/CAD
sCARLTON	1"=25'	JAN. 16, 2013	1210040T	NK/CPN

REVISION: DATE:

SURVEY ALIGNMENT DATA SHEET

NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 1E

PROJECT MANAGER Kimberly_Cameron, P.E.(540)434-5928 (Harrisonburg)
SURVEYED BY NXL Inc.(804)644-4600_____.
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc._____.

CONSTRUCTION ALIGNMENT DATA

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, C501	1F

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

CARLTON STREET CONSTRUCTION BASELINE (SHEET 3)

Curve 1 Data

Curve 1
P.I. Station 10+94.09 N 6,844,314.4320 E 11,380,038.5236
Delta = 22° 24' 35.17" (RT)
Degree = 12° 03' 44.17"
Tangent = 94.0946
Length = 185.7840
Radius = 475.0000
External = 9.2301
Long Chord = 184.6021
Mid. Ord. = 9.0542
P.C. Station 10+00.00 N 6,844,234.3597 E 11,379,989.1047
P.T. Station 11+85.78 N 6,844,369.6174 E 11,380,114.7362
C.C. N 6,843,984.8878 E 11,380,393.3185
Back = N 31° 40' 55.14" E
Ahead = N 54° 05' 30.31" E
Chord Bear = N 42° 53' 12.72" E

Course from PT Curve 1 to 102 N 54° 05' 30.31" E Dist 252.1825

End Region 1
Equation: Sta 14+37.97 (BK) = Sta 33+69.56 (AH)
Begin Region 2

Point 102 N 6,844,517.5197 E 11,380,318.9933 Sta 33+69.56

Course from 102 to PC Curve 2 S 78° 09' 42.72" E Dist 23.5501

End Region 2
Equation: Sta 33+93.11 (BK) = Sta 14+61.52 (AH)
Begin Region 3

Curve 2 Data

Curve 2
P.I. Station 15+31.53 N 6,844,498.3253 E 11,380,410.5673
Delta = 26° 16' 23.07" (LT)
Degree = 19° 05' 54.94"
Tangent = 70.0139
Length = 137.5655
Radius = 300.0000
External = 8.0616
Long Chord = 136.3634
Mid. Ord. = 7.8506
P.C. Station 14+61.52 N 6,844,512.6885 E 11,380,342.0425
P.T. Station 15+99.08 N 6,844,515.7784 E 11,380,478.3709
C.C. N 6,844,806.3078 E 11,380,403.5868
Back = S 78° 09' 42.72" E
Ahead = N 75° 33' 54.21" E
Chord Bear = N 88° 42' 05.74" E

Course from PT Curve 2 to 104 N 75° 33' 54.21" E Dist 184.4021

Point 104 N 6,844,561.7463 E 11,380,656.9517 Sta 17+83.48

RESERVOIR STREET CONSTRUCTION BASELINE (SHEET 3)

Point 200 N 6,844,879.2917 E 11,380,254.2128 Sta 30+00.00

Course from 200 to PC Curve 3 S 17° 45' 18.85" E Dist 104.6261

Curve 3 Data

Curve 3
P.I. Station 31+64.64 N 6,844,722.4953 E 11,380,304.4195
Delta = 13° 41' 18.00" (RT)
Degree = 11° 27' 32.96"
Tangent = 60.0123
Length = 119.4532
Radius = 500.0000
External = 3.5886
Long Chord = 119.1694
Mid. Ord. = 3.5630
P.C. Station 31+04.63 N 6,844,779.6491 E 11,380,286.1186
P.T. Station 32+24.08 N 6,844,662.6341 E 11,380,308.6756
C.C. N 6,844,627.1735 E 11,379,809.9347
Back = S 17° 45' 18.85" E
Ahead = S 4° 04' 00.85" E
Chord Bear = S 10° 54' 39.85" E

Course from PT Curve 3 to 102 S 4° 04' 00.85" E Dist 145.4807

Point 102 N 6,844,517.5197 E 11,380,318.9933 Sta 33+69.56

Course from 102 to PC Curve 4 S 32° 09' 10.69" E Dist 132.4119

Curve 4 Data

Curve 4
P.I. Station 35+65.13 N 6,844,351.9471 E 11,380,423.0702
Delta = 14° 23' 51.84" (RT)
Degree = 11° 27' 32.96"
Tangent = 63.1546
Length = 125.6439
Radius = 500.0000
External = 3.9727
Long Chord = 125.3136
Mid. Ord. = 3.9414
P.C. Station 35+01.97 N 6,844,405.4158 E 11,380,389.4605
P.T. Station 36+27.62 N 6,844,291.8007 E 11,380,442.3293
C.C. N 6,844,139.3250 E 11,379,966.1453
Back = S 32° 09' 10.69" E
Ahead = S 17° 45' 18.85" E
Chord Bear = S 24° 57' 14.77" E

Course from PT Curve 4 to 203 S 17° 45' 18.85" E Dist 152.7320

Point 203 N 6,844,146.3436 E 11,380,488.9051 Sta 37+80.35

ROUNDABOUT CONSTRUCTION BASELINE (SHEET 3)

Curve 5 Data

Curve 5
P.I. Station 10+32.78 N 6,844,470.4438 E 11,380,309.8688
Delta = 86° 14' 40.99" (LT)
Degree = 163° 42' 08.02"
Tangent = 32.7781
Length = 52.6839
Radius = 35.0000
External = 12.9521
Long Chord = 47.8491
Mid. Ord. = 9.4537
P.C. Station 10+00.00 N 6,844,496.9926 E 11,380,290.6448
P.T. Station 10+52.68 N 6,844,487.8877 E 11,380,337.6196
C.C. N 6,844,517.5197 E 11,380,318.9933
Back = S 35° 54' 29.69" E
Ahead = N 57° 50' 49.31" E
Chord Bear = S 79° 01' 50.19" E

Curve 6 Data

Curve 6
P.I. Station 10+67.67 N 6,844,495.8645 E 11,380,350.3098
Delta = 46° 22' 00.03" (LT)
Degree = 163° 42' 08.02"
Tangent = 14.9890
Length = 28.3238
Radius = 35.0000
External = 3.0745
Long Chord = 27.5572
Mid. Ord. = 2.8263
P.C. Station 10+52.68 N 6,844,487.8877 E 11,380,337.6196
P.T. Station 10+81.01 N 6,844,510.5536 E 11,380,353.2931
C.C. N 6,844,517.5197 E 11,380,318.9933
Back = N 57° 50' 49.31" E
Ahead = N 11° 28' 49.28" E
Chord Bear = N 34° 39' 49.29" E

Curve 7 Data

Curve 7
P.I. Station 11+27.07 N 6,844,555.6987 E 11,380,362.4618
Delta = 105° 32' 50.13" (LT)
Degree = 163° 42' 08.02"
Tangent = 46.0668
Length = 64.4752
Radius = 35.0000
External = 22.8545
Long Chord = 55.7376
Mid. Ord. = 13.8262
P.C. Station 10+81.01 N 6,844,510.5536 E 11,380,353.2931
P.T. Station 11+45.48 N 6,844,552.4316 E 11,380,316.5111
C.C. N 6,844,517.5197 E 11,380,318.9933
Back = N 11° 28' 49.28" E
Ahead = S 85° 55' 59.15" W
Chord Bear = N 41° 17' 35.79" W

Curve 8 Data

Curve 8
P.I. Station 12+08.42 N 6,844,547.9681 E 11,380,253.7335
Delta = 121° 50' 28.84" (LT)
Degree = 163° 42' 08.02"
Tangent = 62.9360
Length = 74.4286
Radius = 35.0000
External = 37.0135
Long Chord = 61.1763
Mid. Ord. = 17.9893
P.C. Station 11+45.48 N 6,844,552.4316 E 11,380,316.5111
P.T. Station 12+19.91 N 6,844,496.9926 E 11,380,290.6448
C.C. N 6,844,517.5197 E 11,380,318.9933
Back = S 85° 55' 59.15" W
Ahead = S 35° 54' 29.69" E
Chord Bear = S 25° 00' 44.73" W

Point D600 N 6,844,404.2936 E 11,380,162.6250 Sta 60+00.00

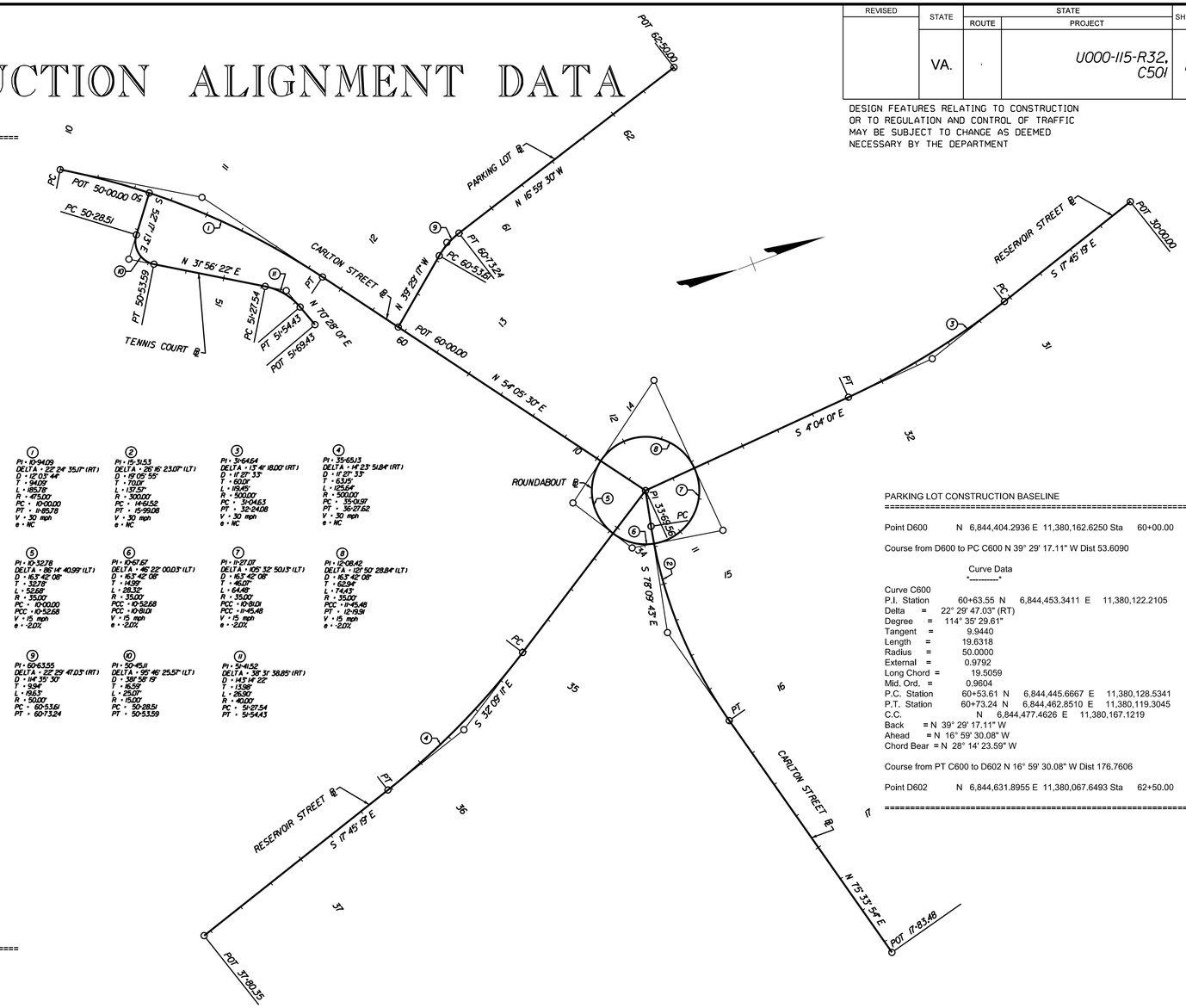
Course from D600 to PC Curve 9 N 39° 29' 17.11" W Dist 53.6090

Curve 9 Data

Curve 9
P.I. Station 60+63.55 N 6,844,453.3411 E 11,380,122.2105
Delta = 22° 29' 47.03" (RT)
Degree = 114° 35' 29.61"
Tangent = 9.9440
Length = 19.6318
Radius = 50.0000
External = 0.9792
Long Chord = 19.5059
Mid. Ord. = 0.9604
P.C. Station 60+53.61 N 6,844,445.6667 E 11,380,128.5341
P.T. Station 60+73.24 N 6,844,462.8510 E 11,380,119.3045
C.C. N 6,844,477.4626 E 11,380,167.1219
Back = N 39° 29' 17.11" W
Ahead = N 16° 59' 30.08" W
Chord Bear = N 28° 14' 23.59" W

Course from PT Curve 9 to D602 N 16° 59' 30.08" W Dist 176.7606

Point D602 N 6,844,631.8955 E 11,380,067.6493 Sta 62+50.00



(1) PI · 10+94.09 · DELTA · 22° 24' 35.17" (RT) · D · 12° 03' 44" · T · 94.09 · L · 185.78 · R · 475.00 · PC · 10+00.00 · PT · 11+85.78 · V · 30 mph · e · NC

(2) PI · 15+31.53 · DELTA · 26° 16' 23.07" (LT) · D · 19° 05' 55" · T · 70.01 · L · 137.57 · R · 300.00 · PC · 14+61.52 · PT · 15+99.08 · V · 30 mph · e · NC

(3) PI · 31+64.64 · DELTA · 13° 41' 18.00" (RT) · D · 11° 27' 33" · T · 60.01 · L · 119.45 · R · 500.00 · PC · 31+04.63 · PT · 32+24.08 · V · 30 mph · e · NC

(4) PI · 35+65.13 · DELTA · 14° 23' 51.84" (RT) · D · 11° 27' 33" · T · 63.15 · L · 125.64 · R · 500.00 · PC · 35+01.97 · PT · 36+27.62 · V · 30 mph · e · NC

(5) PI · 10+32.78 · DELTA · 86° 14' 40.99" (LT) · D · 163° 42' 08" · T · 32.78 · L · 52.68 · R · 35.00 · PC · 10+00.00 · PCC · 10+52.68 · V · 15 mph · e · -2.0%

(6) PI · 10+67.67 · DELTA · 46° 22' 00.03" (LT) · D · 163° 42' 08" · T · 14.99 · L · 28.32 · R · 35.00 · PCC · 10+52.68 · PCC · 10+81.01 · V · 15 mph · e · -2.0%

(7) PI · 11+27.07 · DELTA · 105° 32' 50.13" (LT) · D · 163° 42' 08" · T · 46.07 · L · 64.48 · R · 35.00 · PCC · 10+81.01 · PCC · 11+45.48 · V · 15 mph · e · -2.0%

(8) PI · 12+08.42 · DELTA · 121° 50' 28.84" (LT) · D · 163° 42' 08" · T · 62.94 · L · 74.43 · R · 35.00 · PCC · 11+45.48 · PT · 12+19.91 · V · 15 mph · e · -2.0%

(9) PI · 60+63.55 · DELTA · 22° 29' 47.03" (RT) · D · 114° 35' 30" · T · 9.94 · L · 19.63 · R · 50.00 · PC · 60+53.61 · PT · 60+73.24

(10) PI · 50+45.11 · DELTA · 95° 46' 25.57" (LT) · D · 38° 58' 19" · T · 16.55 · L · 25.01 · R · 150.01 · PC · 50+28.51 · PT · 50+53.59

(11) PI · 51+41.52 · DELTA · 38° 31' 38.85" (RT) · D · 143° 14' 22" · T · 13.98 · L · 26.90 · R · 40.00 · PC · 51+27.54 · PT · 51+54.43

TENNIS COURT CONSTRUCTION BASELINE

Point 500 N 6,844,283.2956 E 11,380,023.7542 Sta 50+00.00

Course from 500 to PC Curve 10 S 52° 17' 12.78" E Dist 28.5119

Curve Data

Curve 10
P.I. Station 50+45.11 N 6,844,255.7044 E 11,380,059.4361
Delta = 95° 46' 25.57" (LT)
Degree = 381° 58' 18.71"
Tangent = 16.5932
Length = 25.0735
Radius = 15.0000
External = 7.3681
Long Chord = 22.2547
Mid. Ord. = 4.9411
P.C. Station 50+28.51 N 6,844,265.8546 E 11,380,046.3095
P.T. Station 50+53.59 N 6,844,269.7856 E 11,380,068.2142
C.C. N 6,844,277.7209 E 11,380,055.4851
Back = S 52° 17' 12.78" E
Ahead = N 31° 56' 21.66" E
Chord Bear = N 79° 49' 34.44" E

Course from PT C500 to PC Curve 10 N 31° 56' 21.66" E Dist 73.9505

Curve Data

Curve 11
P.I. Station 51+41.52 N 6,844,344.4036 E 11,380,114.7310
Delta = 38° 31' 38.85" (RT)
Degree = 143° 14' 22.02"
Tangent = 13.9794
Length = 26.8972
Radius = 40.0000
External = 2.3724
Long Chord = 26.3933
Mid. Ord. = 2.2396
P.C. Station 51+27.54 N 6,844,332.5405 E 11,380,107.3356
P.T. Station 51+54.43 N 6,844,349.0776 E 11,380,127.9058
C.C. N 6,844,311.3797 E 11,380,141.2799
Back = N 31° 56' 21.66" E
Ahead = N 70° 28' 00.50" E
Chord Bear = N 51° 12' 11.08" E

Course from PT Curve 11 to 503 N 70° 28' 00.50" E Dist 15.0000

Point 503 N 6,844,354.0929 E 11,380,142.0425 Sta 51+69.43

PARKING LOT CONSTRUCTION BASELINE

Point D600 N 6,844,404.2936 E 11,380,162.6250 Sta 60+00.00

Course from D600 to PC C600 N 39° 29' 17.11" W Dist 53.6090

Curve Data

Curve C600
P.I. Station 60+63.55 N 6,844,453.3411 E 11,380,122.2105
Delta = 22° 29' 47.03" (RT)
Degree = 114° 35' 29.61"
Tangent = 9.9440
Length = 19.6318
Radius = 50.0000
External = 0.9792
Long Chord = 19.5059
Mid. Ord. = 0.9604
P.C. Station 60+53.61 N 6,844,445.6667 E 11,380,128.5341
P.T. Station 60+73.24 N 6,844,462.8510 E 11,380,119.3045
C.C. N 6,844,477.4626 E 11,380,167.1219
Back = N 39° 29' 17.11" W
Ahead = N 16° 59' 30.08" W
Chord Bear = N 28° 14' 23.59" W

Course from PT C600 to D602 N 16° 59' 30.08" W Dist 176.7606

Point D602 N 6,844,631.8955 E 11,380,067.6493 Sta 62+50.00

CONTSTRUCTION ALIGNMENT DATA SHEET		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 1F

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

EXISTING STRUCTURE DESCRIPTIONS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32; C501	1G

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

EXISTING STORM SEWER

(A) In Pl. Storm MH
Rim = 1385.51'
Inv. In(18") = 1380.79'
Inv. In(15") = 1381.11'
Inv. Out = 1380.77'
In Pl. 79LF - 18" RCP

(B) In Pl. DI Grate
Top = 1383.65'
Inv. Out = 1381.12'
In Pl. 28LF - 15" RCP

(C) In Pl. DI Grate
Top = 1381.52'
Inv. Out = 1379.54'
In Pl. 64LF - 12" CPP

(D) In Pl. Storm MH
Rim = 1384.44'
Inv. In(18") = 1378.53'
Inv. In(12") = 1378.54'
Inv. Out = 1378.52'
In Pl. 18LF - 18" RCP

(E) In Pl. DI Grate
Top = 1384.13'
Inv. In = 1379.43'
Inv. Out = 1378.99'
In Pl. 8LF - 12" CPP

(F) In Pl. DI Grate
Top = 1380.17'
Inv. In(18") = 1378.02'
Inv. In(8"Roof Drain) = 1378.52'
Inv. Out = 1377.84'
In Pl. 64LF - 18" RCP

(G) In Pl. Storm MH
Rim = 1387.17'
Inv. In = 1376.25'
Inv. Out = 1375.99'
In Pl. 47LF - 18" RCP

(H) In Pl. DI Grate
Top = 1389.32
Inv. In(15"NW) = 1384.85'
Inv. In(18"?) = 1385.08'
Inv. In(15"NE) = 1384.78'
Inv. Out = 1384.77'
In Pl. 57LF - 18" RCP

(I) In Pl. DI
Rim = 1388.33'
Inv. In(12"NW) = 1385.22'
Inv. In(12"E) = 1385.18'
Inv. In(A) = 1385.71'
Inv. In(B) = 1385.52'
Inv. Out = 1385.11'
In Pl. 74LF - 15" CMP

(J) In Pl. DI Grate
Top = 1388.48'
Inv. Out = 1386.79'
In Pl. 41 LF - 12" CPP

(K) In Pl. Storm Cleanout
Rim = 1390.51'
In Pl. 100 LF - 12" CPP

(L) In Pl. DI Grate
Top = 1388.05'
Inv. Out(A) = 1386.27'
Inv. Out(B) = 1386.25'
In Pl. (2)20LF - 8" PVCs

(M) In Pl. DI Grate
Top = 1389.32'
Inv. In(15") = 1386.10'
Inv. In(3"Iron) = 1387.41'
Inv. Out = 1386.00'
In Pl. 73LF - 15" RCP

(N) In Pl. DI Grate
Top = 1389.93'
Inv. Out = 1386.82'
In Pl. 79LF - 15" RCP

(O) In Pl. DI
Rim = 1391.02'
Inv. Out = 1387.64'
In Pl. 44LF - 15" CMP

(P) In Pl. DI
Rim = 1390.97'
Inv. In(15"SW) = 1387.06'
(Unable to Locate Other End)
Inv. In(15"NE) = 1387.06'
Inv. Out = 1386.82'
In Pl. 73LF - 18" CMP

(Q) In Pl. DI
Rim = 1389.39'
Inv. In = 1382.27'
Inv. Out = 1382.03'
In Pl. 60LF - 18" RCP

(R) In Pl. DI
Rim = 1392.12'
Inv. Out = 1389.35'
In Pl. 41LF - 12" CMP

(S) In Pl. Storm MH
Rim = 1390.34'
Inv. In(12") = 1386.69'
Inv. In(18") = 1385.71'
Inv. Out = 1385.66'
In Pl. 127LF - 18" CMP

(T) In Pl. Storm MH
Top = 1386.93'
(Paved Over)

(U) In Pl. Storm MH Lid
Rim = 1385.87'
Inv. In(18"RCP) = 1382.42'
Inv. Out = 1381.60'
In Pl. 185LF - 18" RCP

(V) In Pl. Storm MH
Rim = 1372.11'
Inv. In(15"NW) = 1367.75'
Inv. In(18") = 1367.20'
Inv. In(15"E) = 1366.85'
Inv. Out = 1363.14'
In Pl. 18" RCP

(W) In Pl. DI
Rim = 1378.41'
Inv. Out = 1373.00'
In Pl. 44LF - 15" RCP

(X) In Pl. Storm MH
Rim = 1372.00'
Inv. Out = 1367.73'
In Pl. 4LF - 15" RCP

(Y) In Pl. Storm MH
Rim = 1382.16'
Inv. In(18") = 1374.60'
Inv. In(8"Roof Drain) = 1375.43'
Inv. In(6") = 1374.46'
Inv. Out = 1374.58'
In Pl. 184LF - 18" RCP

(Z) In Pl. Metal Grate
Top = 1377.15'
Inv. Out = 1374.70'
In Pl. 7LF - 6" PVC

(AA) In Pl. DI Grate
Top = 1374.67'
Inv. In(18") = 1367.98'
Inv. In(8"Roof Drain) = 1370.13'
(Grate Under Dumpster
- Unable to Access)

EXISTING SANITARY SEWER

(S1) In Pl. Sanitary MH
Rim = 1392.07'
Inv. In(8") = 1387.69'
Inv. In(6") = 1389.06'
Inv. Out = 1387.63'

(S2) In Pl. Sanitary MH
Rim = 1391.68'
Inv. In(8") = 1387.32'
Inv. In(4") = 1387.32'
Inv. Out = 1386.24'

(S3) In Pl. Sanitary MH
Rim = 1390.86'
Inv. In = 1385.88'
Inv. Out = 1385.81'

(S4) In Pl. Sanitary MH
Rim = 1390.74'
Inv. In = 1385.59'
Inv. Out = 1385.53'

(S5) In Pl. Sanitary MH
Rim = 1389.41'
Inv. In(SW) = 1380.61'
Inv. In(NW) = 1383.00'
Inv. In(NE) = 1379.52'
Inv. Out = 1379.50'

(S6) In Pl. Sanitary MH
Rim = 1393.33'
Inv. In = 1388.22'
Inv. Out = 1388.21'

(S7) In Pl. Sanitary MH
Rim = 1381.26'
Inv. In = 1373.36'
Inv. Out = 1373.09'

(S8) In Pl. Sanitary MH
Rim = 1387.04'
Inv. In = 1372.24'
Inv. Out = 1372.15'

(S9) In Pl. Sanitary MH
Rim = 1380.41'
Inv. In = 1370.36'
Inv. Out = 1370.34'

(S10) In Pl. Sanitary MH
Rim = 1380.52'
Inv. In = 1369.08'
Inv. Out = 1369.03'

EXISTING STRUCTURE DESCRIPTIONS		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 1G

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600 _ _ _ _.
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc. _ _ _ _ _ _.

'95 CADD LEVEL STRUCTURE

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32; C501	1H

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

SURVEY

LEVEL 1	CENTERLINE, TRAVERSE, CONTROL STATION
LEVEL 2	BRIDGES
LEVEL 3	EDGE OF PAVEMENT, GRAVEL, CONCRETE, ASPHALT PARKING LOT
LEVEL 4	CURB AND GUTTER
LEVEL 5	CURB & CONCRETE ISLANDS
LEVEL 6	PAVED & GRAVEL SHOULDER
LEVEL 7	SIDEWALK (ALONG ROADS); WHEELCHAIR RAMPS
LEVEL 8	BUILDINGS, PORCHES, DECKS, PATIOS & SWIMMING POOLS
LEVEL 9	WALKS (AROUND HOUSES & BUILDINGS)
LEVEL 10	STEPS
LEVEL 11	FENCES & GATES
LEVEL 12	WOOD LINE, TREES, SHRUBS, HEDGEROWS
LEVEL 13	RETAINING WALLS
LEVEL 14	CONCRETE SLABS, BALLARDS, COLUMNS, SIGNS, POSTS, GAS ISLANDS & PLAYSETS
LEVEL 15	ABOVE GROUND TANKS, DUMPSTERS, PROPANE TANKS
LEVEL 16	GUARDRAIL & JERSEY BARRIER
LEVEL 17	BODIES OF WATER, STREAMS, LAKES, ETC.
LEVEL 18	PAVED DITCHES, RIPRAP
LEVEL 19	DRAINAGE ITEMS DAMS, ENDWALLS & ENDSECTIONS CATCH BASINS, DROP INLETS & DI MANHOLES CULVERT PIPES
LEVEL 20	ALL RAILROAD ITEMS, RAILROAD TIES
LEVEL 21	SEPTIC TANKS, DRAIN FIELDS, WELLS
LEVEL 22	CEMETERY LOCATION & GRAVES
LEVEL 23	RIGHT OF WAY AND RIGHT OF WAY MONUMENTS
LEVEL 24	PROPERTY LINES, TEMPORARY EASEMENT, PERMANENT EASEMENT, PROPERTY PINS
LEVEL 25	STATE, COUNTY AND CITY BOUNDARY LINES
LEVEL 26	UTILITY EASEMENTS
LEVEL 27	WELANDS
LEVEL 28	GAS PUMPS, GAS TANKS, FILLER CAPS, MONITORING WELLS, VENT PIPES, ETC.
LEVEL 29	MINE INFORMATION
LEVEL 30	EXISTING NOISE BARRIER WALLS
LEVEL 31-60	ANNOTATION FOR LEVELS 1 - 30
LEVEL 61	TRAFFIC SIGNES IN R/W, BASE PLAN SHEET, NORTH ARROW, SCALE BAR, ETC.
LEVEL 62	GRID AND LABELS; ELEVATION TICKS, PROJECT NOTES
LEVEL 63	NOT ASSIGNED

NOTE: Survey Utility information will be in a separate file. Digital Terrain Model information will be in separate files.

DESIGN

LEVEL 1	BASELINE & SUB-TANGENTS
LEVEL 2	BRIDGES
LEVEL 3	EDGE OF PAVEMENT & PRIVATE ENTRANCES
LEVEL 4	CURB AND GUTTER
LEVEL 5	CURB
LEVEL 6	PAVED SHOULDER
LEVEL 7	SIDEWALK AND/OR BICYCLE TRAIL
LEVEL 8	NOT ASSIGNED
LEVEL 9	NOT ASSIGNED
LEVEL 10	STEPS
LEVEL 11	FENCES
LEVEL 12	DIRECTIONAL ARROWS, PAVEMENT STRIPING & FLUSH MEDIAN DELINEATION
LEVEL 13	RETAINING WALLS
LEVEL 14	CONCRETE SLABS, COLUMNS, SIGNS, POSTS
LEVEL 15	NOT ASSIGNED
LEVEL 16	GUARDRAIL & JERSEY BARRIER
LEVEL 17	NOT ASSIGNED
LEVEL 18	PAVED DITCHES
LEVEL 19	RESERVED FOR MISC. DRAIN. ITEMS TO BE PLACED BY ROAD DESIGNERS
LEVEL 20	RAILROADS, ETC.
LEVEL 21	NOT ASSIGNED
LEVEL 22	LIMITS OF CONSTRUCTION
LEVEL 23	RIGHT-OF-WAY, TEMP. & PERM. EASEMENTS
LEVEL 24	NOT ASSIGNED
LEVEL 25-29	NOT ASSIGNED
LEVEL 30	PROPOSED NOISE BARRIER WALLS & ANNOTATION
LEVEL 31-54	ANNOTATION FOR LEVELS 1 - 24
LEVEL 55-60	NOT ASSIGNED
LEVEL 61	BASE PLAN SHEET, SCALE BAR, NORTH ARROW, MATCH LINES, SEALING & SIGNING BLOCKS
LEVEL 62	NOT ASSIGNED
LEVEL 63	NOT ASSIGNED

HYDRAULICS - DRAINAGE

LEVEL 1	PIPES FROM 4" TO 42" (CUSTOM LINE STYLES)
LEVEL 2	PIPES 48" AND LARGER (CUSTOM LINE STYLE)
LEVEL 3	STANDARD BOX CULVERTS LC-0, WT-5
LEVEL 4	ENDWALLS (CELLS)
LEVEL 5	END SECTIONS (CELLS)
LEVEL 6	DITCHES AND FLUMES WT-4, LC-0 (CUSTOM LINE STYLE)
LEVEL 7	ENERGY DISSIPATORS, PIPE SPILLOUT AND SPRING BOXES (CELLS)
LEVEL 8	MANHOLES AND JUNCTION BOXES (CELLS)
LEVEL 9	DROP INLETS DI-1, DI-5 AND DI-9 SERIES (CELLS)
LEVEL 10	DROP INLETS DI-2 SERIES (CELLS)
LEVEL 11	DROP INLETS DI-3 SERIES (CELLS)
LEVEL 12	DROP INLETS DI-4 SERIES (CELLS)
LEVEL 13	DROP INLETS DI-7 SERIES (CELLS)
LEVEL 14	DROP INLETS DI-10 SERIES (CELLS)
LEVEL 15	DROP INLETS DI-11 AND DI-13 SERIES (CELLS)
LEVEL 16	DROP INLETS DI-12 SERIES (CELLS)
LEVEL 17	DROP INLETS DI-14 SERIES (CELLS)
LEVEL 18	SPECIAL DESIGN ITEMS (ENDWALLS, INLETS, ETC.)
LEVEL 19	UNDERDRAINS (CD-1 & 2, UD-1, UD-2, ETC.) (CUSTOM LINE STYLE)
LEVEL 20	UNDERDRAIN OUTLET PIPE AND EW-12 ENDSECTIONS (CUSTOM LINE STYLE & CELLS)
LEVEL 21	STONE & OUTLET PROTECTION (EC-1, RIPRAP CHANNEL, ETC.) (CELLS)
LEVEL 22	SWM BASIN ITEMS (BASIN, RISERS, WEIRS, ETC.)
LEVEL 23	SWM BASIN (BASELINE/ALIGNMENT)
LEVEL 24	SWM BASIN (PLAN VIEW/CONTOURS)
LEVEL 25	SWM BASIN (MISCELLANEOUS/ITEMS)
LEVEL 26	SWM BASIN (DESCRIPTIONS/NOTES)
LEVEL 27	TYPICAL DITCH DETAILS
LEVEL 28-30	NOT ASSIGNED
LEVEL 31-60	ANNOTATION FOR LEVELS 1 - 30 NOTE: ALL DRAINAGE STRUCTURE LABELS ON LEVEL 31
LEVEL 61	BASE PLAN SHEET, SCALE BAR, NORTH ARROW, MATCH LINES, ETC. WT- 5, LC- 0
LEVEL 62	NOT ASSIGNED
LEVEL 63	PROJECT NOTES

EROSION & SEDIMENT CONTROL

LEVEL 1	PHASE I - EROSION CONTROL ITEMS (TFB, TSF, TURB. CURTAIN) (CUSTOM LINE STYLE)
LEVEL 2	PHASE I - EROSION CONTROL DITCH ITEMS (EC-2, EC-3, ETC.)(CUSTOM LINE STYLE)
LEVEL 3	PHASE I - EROSION CONTROL STONE (EC-1, RIPRAP, CHECK DAMS) (CELLS)
LEVEL 4	PHASE I - EROSION CONTROL ITEMS (SEDIMENT TRAPS & BASINS)
LEVEL 5	PHASE I - EROSION CONTROL ITEMS (DIVERSION DIKES & DITCHES) (CUSTOM LINE STYLE)
LEVEL 6	PHASE I - EROSION CONTROL ITEMS (TEMPORARY DIVERSION CHANNELS) (CUSTOM LINE STYLE)
LEVEL 7	PHASE I - EROSION CONTROL ITEMS (MISCELLANEOUS DIVERSION ITEMS)
LEVEL 8	PHASE I - EROSION CONTROL ITEMS (BRUSH BARRIERS, LEVEL SPREADERS, ETC.)
LEVEL 9	PHASE I - MISCELLANEOUS EROSION CONTROL ITEMS
LEVEL 10	PHASE I - TEMPORARY DRAINAGE (PIPES) (CUSTOM LINE STYLE)
LEVEL 11	PHASE I - PROPOSED DRAINAGE (PIPES) (CUSTOM LINE STYLE)
LEVEL 12	PHASE I - PROPOSED DRAINAGE (SWM)
LEVEL 13	PHASE I - EXISTING CONTOURS (LC- 1, WT- 1)
LEVEL 14	PHASE I - PROPOSED CONTOURS
LEVEL 15	PHASE I - SYMBOLS, LEGEND AND NOTES
LEVEL 16	PHASE II - EROSION CONTROL ITEMS (TFB, TSF, TURB. CURTAIN) (CUSTOM LINE STYLE)
LEVEL 17	PHASE II - EROSION CONTROL DITCH ITEMS (EC-2, EC-3, ETC.)(CUSTOM LINE STYLE)
LEVEL 18	PHASE II - EROSION CONTROL STONE (EC-1, RIPRAP, CHECK DAMS) (CELLS)
LEVEL 19	PHASE II - EROSION CONTROL ITEMS (SEDIMENT TRAPS & BASINS)
LEVEL 20	PHASE II - EROSION CONTROL ITEMS (DIVERSION DIKES & DITCHES) (CUSTOM LINE STYLE)
LEVEL 21	PHASE II - EROSION CONTROL ITEMS (TEMPORARY DIVERSION CHANNELS) (CUSTOM LINE STYLE)
LEVEL 22	PHASE II - EROSION CONTROL ITEMS (MISCELLANEOUS DIVERSION ITEMS)
LEVEL 23	PHASE II - EROSION CONTROL ITEMS (BRUSH BARRIERS, LEVEL SPREADERS, ETC.)
LEVEL 24	PHASE II - MISCELLANEOUS EROSION CONTROL ITEMS
LEVEL 25	PHASE II - TEMPORARY DRAINAGE (PIPES) (CUSTOM LINE STYLE)
LEVEL 26	PHASE II - PROPOSED DRAINAGE (PIPES) (CUSTOM LINE STYLE)
LEVEL 27	PHASE II - PROPOSED DRAINAGE (SWM)
LEVEL 28	PHASE II - EXISTING CONTOURS (LC- 1, WT- 1)
LEVEL 29	PHASE II - PROPOSED CONTOURS
LEVEL 30	PHASE II - SYMBOLS, LEGEND AND NOTES
LEVEL 31-60	ANNOTATION FOR LEVELS 1 - 30
LEVEL 61	BASE PLAN SHEET, SCALE BAR, NORTH ARROW, ETC. WT- 5, LC- 0
LEVEL 62	NOT ASSIGNED
LEVEL 63	PROJECT NOTES

TRAFFIC ENGINEERING

LEVEL 1	PROPOSED AND EXISTING SIGNAL FACES & NUMBERS SIGN FACES & NUMBERS (Legend)
LEVEL 2	PROPOSED UNDERGROUND SIGNAL EQUIPMENT CONDUIT, JUNCTION BOXES, MANHOLES
LEVEL 3	UNDERGROUND EQUIPMENT LABELS CONDUIT, WIRE, JUNCTION BOXES
LEVEL 4	PROPOSED ABOVE GROUND MINOR SIGNAL EQUIPMENT SIGNS ON SPANWIRE, MAST ARMS, POLES, SIGNAL HEADS, PEDESTRIAN PUSHBUTTONS, ETC.
LEVEL 5	ABOVE GROUND EQUIPMENT LABELS SIGNAL POLE LABELS SIGNAL HEAD LABELS, SIGN LABELS, PHASE INFO, SIGNAL POLE DETAIL
LEVEL 6	PROPOSED LOOPS/VIDEO DETECTION ZONES LOOPS, VIDEO DETECTION ZONES, MICROLOOP PROBE
LEVEL 7	SIGNAL CHARTS COLOR SEQUENCE CHART, PHASING DIAGRAM, PREEMPTION DIAGRAM, TIMING CHART
LEVEL 8	OVERHEAD UTILITY HEIGHT INFORMATION
LEVEL 9	EXISTING UNDERGROUND SIGNAL EQUIPMENT CONDUIT, JUNCTION BOXES, MANHOLES
LEVEL 10	EXISTING ABOVE GROUND MINOR SIGNAL EQUIPMENT POLE, MAST ARM, SPAN WIRE, SIGNAL HEADS, PEDESTRIAN PUSHBUTTONS, CONTROLLER/CABINET&FOUNDATION, ETC.
LEVEL 11	EXISTING LOOPS/VIDEO DETECTION ZONES LOOPS, VIDEO DETECTION ZONES, MICROLOOP PROBES
LEVEL 12	EXISTING PAVEMENT MARKINGS (LONGITUDINAL)
LEVEL 13	EXISTING TRANSVERSE MARKINGS (STOP BARS & CROSSWALKS)
LEVEL 14	EXISTING HATCHING
LEVEL 15	EXISTING LETTERS/ARROWS/SYMBOLS
LEVEL 16	GUARDRAIL AND JERSEY BARRIER
LEVEL 17	PROPOSED PAVEMENT MARKINGS (LONGITUDINAL)
LEVEL 18	PROPOSED TRANSVERSE MARKINGS (STOP BARS & CROSSWALKS)
LEVEL 19	PROPOSED HATCHING
LEVEL 20	PROPOSED LETTERS/ARROWS/SYMBOLS
LEVEL 21	PAVEMENT MARKINGS LABELS
LEVEL 22	DIRECTIONAL ARROWS (LANE ARRANGEMENTS ARROWS)
LEVEL 23	EXISTING AND PROPOSED ROW PROPOSED R/W FOR TCD's, LABELS AND LEADERS
LEVEL 24	EXISTING SIGN LOCATIONS INCLUDING STRUCTURES (SYMBOLS)
LEVEL 25	EXISTING SIGN FACES & LEADERS EXISTING SIGN FACES, EXISTING SIGN LEADERS, 'X' FOR EXISTING SIGNS TO BE REMOVED
LEVEL 26	PROPOSED SIGN LOCATIONS, INCLUDING STRUCTURES (SYMBOLS)
LEVEL 27	PROPOSED SIGN FACES & LEADERS, PROPOSED SIGN FACES, PROPOSED SIGN LEADERS
LEVEL 28	SIGN NUMBER/CALL-OUTS PROPOSED SIGN CALL-OUT, EXISTING SIGN CALL-OUT
LEVEL 29	SIGN DETAIL SHEET
LEVEL 30	SIGN SCHEDULE SHEET
LEVEL 31	OVERHEAD SIGN SUPPORT DATA SUMMARY & NOTES
LEVEL 32	VA AND VIA STRUCTURE SHEET
LEVEL 33	PROPOSED ABOVE GROUND EQUIPMENT POLES, LUMINAIRES, ARMS, ELECTRICAL SERVICE, CONTROL CENTER
LEVEL 34	PROPOSED UNDERGROUND EQUIPMENT CONDUIT, JUNCTION BOXES, FOUNDATIONS, DUCT CABLE
LEVEL 35	PROPOSED UNDER BRIDGE LIGHTING
LEVEL 36	LIGHTING LABELS POLE LOCATION LABEL, LUMINAIRE LABEL, CONDUIT/CABLE IDENTIFIER LABEL, EXIST. CONDUIT/CABLE IDENTIFIER LABLE
LEVEL 37	EXISTING ABOVE GROUND EQUIPMENT -- LIGHTING LUMINAIRES (INCLUDING UNDER BRIDGE), POLES, CONTROL CENTER, ELECTRICAL SERVICE, ARMS
LEVEL 38	EXISTING UNDERGROUND EQUIPMENT -- LIGHTING CONDUIT, JUNCTION BOXES, DUCT CABLE
LEVEL 39	SIGNAL LEGEND
LEVEL 40	SIGNAL POLE LEGEND
LEVEL 41	SIGNING LEGEND
LEVEL 42	PAVEMENT MARKING LEGEND
LEVEL 43	LIGHTING LEGEND
LEVEL 44	SUMMARY OF QUANTITIES
LEVEL 45	GENERAL NOTES & PLAN NOTES
LEVEL 46	LOCATION INFORMATION ROADWAY NAMES, BASELINE NAME, DIRECTIONAL ARROWS, DIRECTIONAL ARROW TEXT
LEVEL 47	DIMENSIONS, TERMINATORS
LEVEL 48	PROP. ABOVE GROUND MAJOR SIGNAL EQUIPMENT POLE - MAST ARM, COMBO MAST ARM, STRAIN, COMBO STRAIN, PF-2, PF-3 MAST ARM, SPAN WIRE, CONTROLLER/ CABINET & FOUNDATION, UTILITY POLES
LEVEL 49	EXIST. ABOVE GROUND MAJOR SIGNAL EQUIPMENT POLE - MAST ARM, COMBO MAST ARM, STRAIN, COMBO STRAIN, PF-2, PF-3 MAST ARM, SPAN WIRE, CONTROLLER/ CABINET & FOUNDATION, UTILITY POLES
LEVEL 50	'CLIP MASK' BOUNDARIES
LEVEL 51	'CLIP BOUNDARY' BOUNDARIES
LEVEL 52	PROPOSED SIGNAL POLES FOUNDATIONS
LEVEL 53	CLEARZONE TEMPLATES FOR SIGNAL/LIGHT POLES
LEVEL 54	SIGNAL HEAD SIGHT LINES - NB
LEVEL 55	SIGNAL HEAD SIGHT LINES - SB
LEVEL 56	SIGNAL HEAD SIGHT LINES - EB
LEVEL 57	SIGNAL HEAD SIGHT LINES - WB
LEVEL 58	SIGNAL DESIGNER WORKING LEVEL PAVEMENT MARKING LAYOUTS, SIGNAL WORKING LEVEL, LIGHTING WORKING LEVEL, SIGNING WORKING LEVEL
LEVEL 59	STAGING AREAS DIRECTIONAL BORE STAGING AREA, JACKING PIT - 20' PIPE SLEEVE JACKING PIT - 10' PIPE SLEEVE
LEVEL 60	BORDER TEXT - FILL-IN PRELIMINARY PLANS TITLE
LEVEL 61	SHEET INFORMATION NORTH ARROW, SCALE BAR, MATCHLINES, BORDER, STANDARD BORDER TEXT, VDOT LOGO, CONSULTANT LOGO
LEVEL 62	BORDER SNAP LOCATIONS
LEVEL 63	PRINT BOUNDARY

CADD LEVEL STRUCTURE SHEET		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 1H

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

TEMPORARY TRAFFIC CONTROL PLAN
GENERAL NOTES

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32; C501	IJ(1)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

GENERAL NOTES

1. All work on this project shall conform to the 2009 Manual on Uniform Traffic Control Devices (MUTCD), the 2011 Virginia Supplement to the MUTCD with revisions, and the 2011 VDOT Work Area Protection Manual (WAPM), and all subsequent revisions.
2. The contractor shall plan and prosecute the work in accordance with the following sequence of construction (SOC) and maintenance of traffic plan (MOT), unless otherwise approved by the Engineer.
3. It is not the intent of the SOC plan to enumerate every detail which must be considered in the construction of each stage, but only to show the general handling of traffic.
4. Any contract items not specifically noted in the SOC may be constructed at the contractor's option, as approved by the Engineer.
5. Temporary lane widths shall be no less than 11 feet, unless noted otherwise on the plans.
6. Measures shall be taken to ensure adequate sight distances during construction operations. Traffic Control devices, signs, construction equipment, material storage or any other obstacle will not be allowed to interfere with sight distances for this project.
7. All driveways shall have access during all phases of construction. Contractor shall coordinate with property owners at least 72 hours in advance of driveway construction.
8. All areas excavated deeper than 2" below the existing pavement surface and within the clear zone, at the conclusion of each work day, shall be backfilled to form an approximate 6:1 wedge against the existing pavement surface for the safety and protection of vehicular traffic. All cost for placing, maintaining, and removing the 6:1 wedge shall be included in the price bid for other items in the contract and no additional compensation will be allowed.
9. Cones may be used in areas where personnel will be present to ensure their proper alignment. When personnel are not present Group II Channelizing Devices shall be required.
10. The Contractor shall maintain pedestrian access throughout construction. Contractor shall provide protection for pedestrians when construction activities are adjacent to the sidewalk and/or pedestrian path.
11. Equipment and/or materials shall not be placed within the established Clear Zone and /or the deflection zone of physical barriers.
12. All Traffic Control Devices and signs necessary for the Maintenance of Traffic are to be provided, installed, maintained, and removed by the Contractor.
13. All traffic control device locations shall be marked by the Contractor and reviewed by the Engineer prior to installation.
14. All conflicting pavement markings and raised snowplowable pavement markers shall be covered using Construction Pavement Marking Type E 6" or eradicated as described in the VDOT General Specifications.
15. All maintenance of traffic shall be designed and installed based on posted speed limit:
    --Reservoir Street = 25 mph speed limit
    --Carlton Street = 25 mph speed limit
16. All existing conflicting signs shall be removed or covered during construction, otherwise existing signing to be maintained.
17. Contractor shall have any lane closure/flagging operation completed by the noted time frames shown at right. All devices must be removed and traffic flow established/reestablished within time frame.
18. Contractor shall provide a plan regarding equipment and personnel ingress/egress of the work zone.
19. Contractor shall protect any open trench or excavation that crosses active entrances or sidewalks. Contractor may need to use plates or other protective devices when utility or drainage work occurs within work zones.
20. Contractor shall maintain proper positive drainage during all phases of work. Provide temporary drainage devices as needed. Cost to be included in other items, no separate payment will be made.

ALLOWABLE HOURS FOR LANE CLOSURE AND/OR FLAGGING OPERATIONS

Sunday	No restrictions
Monday	No restrictions
Tuesday	No restrictions
Wednesday	No restrictions
Thursday	No restrictions
Friday	No restrictions
Saturday	No restrictions

Lane Closures will not be permitted during the days listed for the following events/holidays (unless approved by the Engineer):

Easter Sunday - from the preceding Friday to the following Monday (inclusive)

JMU Commencement (Saturday) - from the preceding Friday to the following Monday (inclusive)

Memorial Day - from the preceding Friday to the following Tuesday (inclusive)

July 4 - from July 3-July 5 (inclusive). If July 4 is on a weekend, then from the Friday before to the Monday after (inclusive).

Labor Day - from the preceding Friday to the following Tuesday (inclusive)

Thanksgiving - from the preceding Wednesday to the following Monday (inclusive)

Christmas - from December 24 to January 2 (inclusive).

NOTE: Lane Closures/Flagging Operations will be allowed at all times with prior written approval from the Engineer, at the Engineer's discretion.

UTILITY OWNERS

WATER & SEWER
City of Harrisonburg
Attn: Marilyn Hartman (Field Contact)
1-540-434-9959
In the event of damage, call:
1-540-434-9959

City of Harrisonburg
Attn: Glen Baldwin (Field Contact)
1-540-434-5928
In the event of damage, call:
1-540-434-5928

ELECTRICITY
Harrisonburg Electric
Attn: Brian O'Dell (Field Contact)
1-540-434-5361
In the event of damage, call:
1-540-434-5363

COLUMBIA GAS
Attn: UTILIQUEST
1-703-754-2116
In the event of damage, call:
1-800-544-5606

TELEPHONE / CABLE
Verizon
Attn: Dean Rasmussen (Field Contact)
1-434-942-8192
In the event of damage, call:
1-877-562-2253

COMCAST
800-266-2278
Field Contact: USIC Locating Service
800-778-9140
Emergency/Damage: 800-441-6917 Ext.1

TEMP. TRAFFIC CONTROL PLAN GENERAL NOTES		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. IJ(1)

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY N.K.L. Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGN BY McCormick Taylor, Inc.

TEMPORARY TRAFFIC CONTROL PLAN
SEQUENCE OF CONSTRUCTION

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32; C501	1J(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

SEQUENCE OF CONSTRUCTION

PHASE 1

Install temporary erosion & sediment (E&S) control measures throughout the length of the project.

Install signs and temporary traffic control devices throughout the project.

Install temporary saftery fence to southeast of the school parking lot along the temporary construction easement.

Eradicate existing pavement markings on Reservoir Street from approx. Station 29+75.00 where temporary matches existing, to approx. Station 37+25 where temporary matches existing.

Construct the new tennis court parking lot entrance.

Close Carlton Street between east of the new tennis court parking lot entrance and Reservoir Street in accordance with Figure TTC-34.0 (See WAPM) and as shown on the Sheet 1J(6) plans. Detour route using Mountain View Drive, Cantrell Ave, and Reservoir Street. Keep the north side of Carlton Street open to on-street parking to best the extent possible.

Eliminate the center turn lane on Reservoir Street and shift southbound traffic to the left as shown on the Phase 1 Plans and in accordance with Figure TTC-22.0 (See WAPM).

Install traffic barrier service, concrete 2 sided and impact attenuator service at the locations shown on the plans.

Construct temporary sediment basin (to later be converted to SWM pond) in NW quadrant of roundabout and the outfall stormwater pipe.

Construct widening of Reservoir Street and Carlton Street in SW quadrant of roundabout. Only construct splitter islands up to pavement level; do not construct MS-1 concrete until Phase 4, so that the pavement at those locations can be used to carry traffic during Phases 2-3. Construct temporary pavement at the locations shown on the plans.

Construct the new elementary school parking lot prior to school opening.

Utilize Figure TTC-23.0 (See WAPM) as necessary to construct new stormwater pipe crossings of Carlton Street.

PHASE 2

Remove the detour signs and reopen Carlton Street at the beginning of this phase.

Keep southbound Reservoir Street shifted to the left as shown in the Phase 2 plans.

Construct widening of Carlton Street and Reservoir Street in the NW quadrant of the roundabout, including the central island.

Construct temporary pavement at the locations shown on the plans.

Remove temporary safety fence installed in phase 1.

PHASE 3

Eradicate existing pavement markings on Carlton Street from station 15+25 to 16+00. Install temporary markings, signs and traffic control devices as shown on the Phase 3 plans, and shift both directions of Reservoir Street through the temporary pavement in the central island. Shift Carlton Street traffic to the locations shown on the plans.

Construct widening of Carlton Street and Reservoir Street in the NE and SE quadrants of the roundabout.

Maintain a right turn egress movement at Carlton Street entrance to McDonald's at STA 15+60. Maintain access to McDonald's other entrance on Carlton Street and to McDonald's Reservoir Street entrance at all times.

SEQUENCE OF CONSTRUCTION

PHASE 4

At the beginning of the phase, install permanent roundabout signage, remove temporary pavement markings, and permanently switch Reservoir Street and Carlton Street traffic to roundabout operation.

Utilizing Figure TTC-31.0 (See WAPM) as necessary, complete the splitter island construction, remove temporary pavement, complete the construction of the central island, and install the permanent pavement markings.

Complete construction of the SE quadrant of the roundabout.

Remove all temporary traffic control devices and temporary E&S control measures.

TEMP. TRAFFIC CONTROL PLAN SEQ. OF CONST.		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 1J(2)

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

TRANSPORTATION MANAGEMENT PLAN

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32; C501	1J(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Project Description

This project is classified as a Type B (Category III or IV).

The purpose of the project is to improve traffic capacity, traffic safety, and pedestrian safety at the intersection of Reservoir Street and Carlton Street in the City of Harrisonburg by replacing the existing stop-controlled intersection with a new single-lane roundabout.

Traffic consists primarily of commuters and residents.

The existing speed limit on both streets is 25 mph. This speed limit will be maintained during Phases 1 and 2 of construction. Starting in Phase 3 and continuing through to the permanent condition, NB and SB Reservoir Street will be slowed to 15 mph as they approach and navigate the roundabout. Starting in Phase 4 and continuing through to the permanent condition, EB and WB Carlton Street will be slowed to 15 mph as they approach and navigate the roundabout.

A. Temporary Traffic Control Plan

General Notes

Unless specified otherwise, the work zone shall be maintained according to Section 512 "Maintaining Traffic" of the 2007 Virginia Road and Bridge Specifications and the Maintenance of Traffic Plans.

The Contractor may use City-owned property in the NW and SW quadrants of the intersection to store equipment and materials. The Contractor must submit sketches to the City for approval before starting construction detailing where he intends to store equipment and materials.

Special Details

Night work will normally be permitted between the hours of 9:00 p.m. to 5:00 a.m., Sunday evening through Friday morning. Work on Sunday nights will be restricted to single lane closures only, unless authorized by the Engineer. Day work will normally be permitted between the hours of 9:00 a.m. to 3:00 p.m., Monday through Friday while school is in session. No daytime work hour restrictions will be enforced between January 5th and August 14th. These time frames are subject to change as determined by the City Engineer. The Contractor is responsible for obtaining approval for night work operations as required by local City noise ordinances.

The Public Works Engineer reserves the right to monitor traffic conditions impacted by the work and he/she shall have the authority to impose additional restrictions for other holidays or special local events as determined necessary in the event that safety or other conditions warrant. The City has the authority to change or alter the work time frame(s) accordingly.

For towing and traffic enforcement within the approved construction site, the Contractor shall contact the local police contacts (as listed in step 1 of the Incident Response Section of the Transportation Operations Plan below).

B. Public Communications Plan for Incidents in the Work Zone

The public communications plan is contained in the Lane Closure Reporting section of the Transportation Operations Plan below. The lane closures will be governed by the times established for lane closure periods in these plans.

C. Transportation Operations Plan

Lane Closure Reporting

The CONTRACTOR shall immediately report accidents and vehicle breakdowns via phone to the Harrisonburg Emergency Communication Center (911) and notify the Public Works Engineer, as detailed in the Incident Response Section below.

Prior to making any changes affecting traffic, he shall provide the Public Works Engineer a minimum of two (2) full working days' notice (48 hours). He shall provide each of the following parties all of the information requested above via email.

- Kim Cameron, Public Works Engineer – (540) 434-5928 -- Kim.Cameron@harrisonburgva.gov
- Tom Hartman, Assistant Director of Public Works -- (540) 434-5928 – Tom.Hartman@harrisonburgva.gov
- Shawn Adams, Traffic General Supervisor – (540) 434-5928 – Shawn.Adams@harrisonburgva.gov
- Michael Fulcher, VDOT -- (540) 332-7887 -- michael.fulcher@vdot.virginia.gov
- Rick DeLong, McCormick Taylor, Inc. -- (540) 248-0382 -- rjdelong@mtmail.biz

The following is the procedure to respond to traffic incidents that may occur within the work zone:

a) Contractor to notify 911
b) Contractor to notify the Engineer
c) Depending on the severity of the incident, contractor may have to shut down work
d) Upon arrival on scene, the City Police will determine the response necessary to allow the traveling public around the incident.
e) Inspector to notify Construction Manager of incident and take pictures as necessary, especially pictures of Contractor's work zone to verify the proper setup.

Incident Response

The following is a list of local emergency contact agencies and procedures to respond to traffic incidents that may occur in the Work Zone:

1. Contractor shall notify City Police (911) and the Engineer immediately when a traffic accident occurs within the work zone, in the event of a hazardous spill or employee accident occurs.
2. The Contractor shall take necessary measures to render assistance to any accident victims and to perform traffic control until the appropriate authorities arrive on scene.
3. Depending upon the severity of incident, the Contractor may have to shut down work.
4. Upon arrival on scene, City Police will determine response necessary to guide the traveling public around the incident.
5. Inspector will notify Chief Construction Inspector or Public Works Engineer of incident and take pictures as necessary, especially pictures of contractor's Work Zone to verify the proper setup.
6. Process of notification of incident to be followed is for the Contractor to call:
   a. Project/Maintenance of Traffic Coordinator, TBD (Provided at pre-construction meeting)
   b. Public Works Engineer, Kim Cameron, 540-434-5928
   c. Assistant Director of Public Works, Tom Hartman, 540-434-5928
   d. Harrisonburg Public Information Officer, Mary-Hope Vass, 540-432-7701
7. The City Police report of the incident will be reviewed by the Engineer to determine if any modification of the Temporary Traffic Control Plan is necessary. If it is determined that it is necessary to alter the plan, then a meeting will be called with the contractor, the City Department of Public Works, and City Police to discuss modification and implementation of an improved traffic control plan.

TRANSPORTATION MANAGEMENT PLAN		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 1J(3)

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

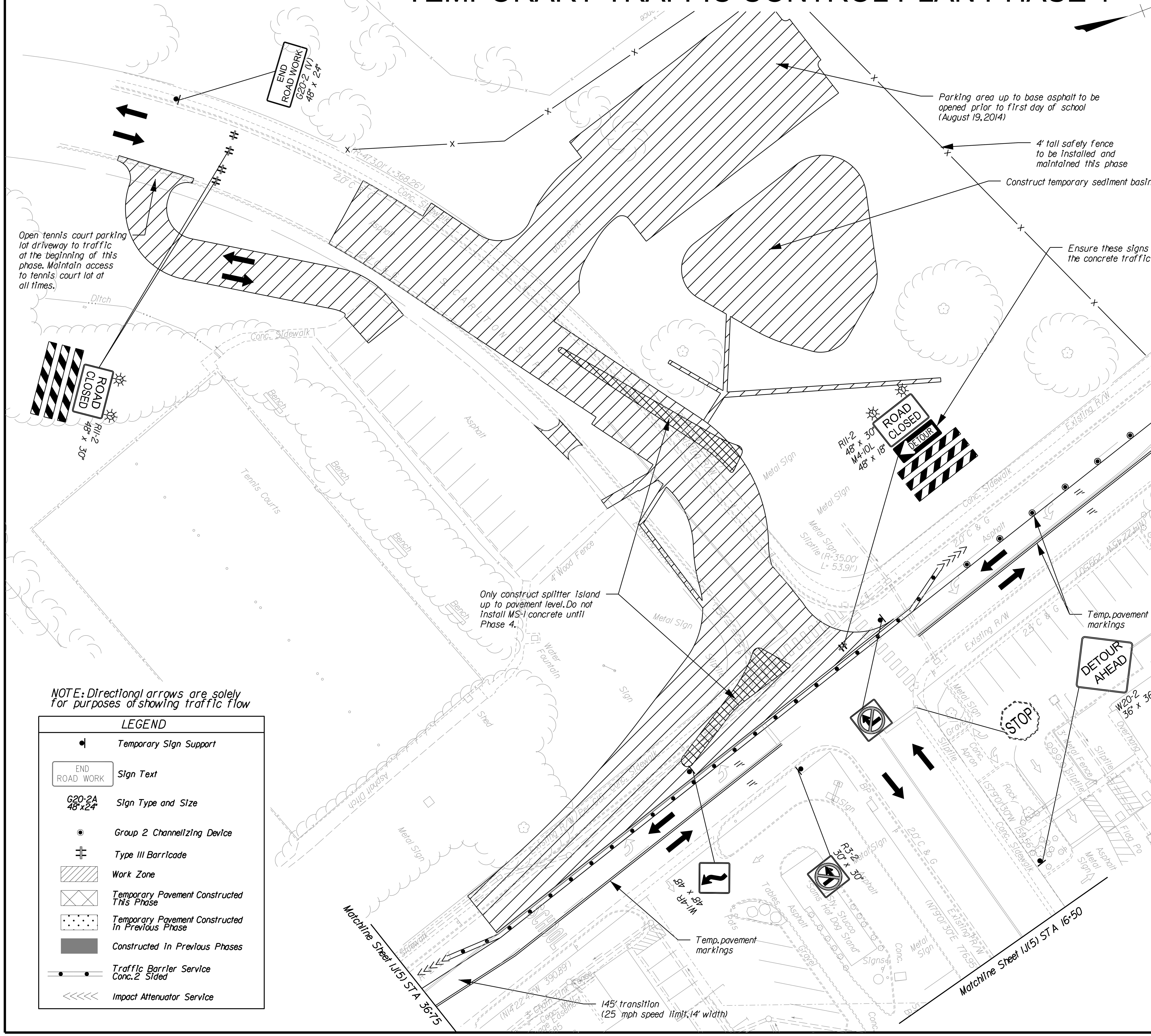
TEMPORARY TRAFFIC CONTROL PLAN PHASE 1

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101, R201; C501	1J(4)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



NOTE: Directional arrows are solely for purposes of showing traffic flow

LEGEND	
(symbol)	Temporary Sign Support
END ROAD WORK	Sign Text
G20-2A 48"x24"	Sign Type and Size
(symbol)	Group 2 Channelizing Device
(symbol)	Type III Barricade
(hatch)	Work Zone
(hatch)	Temporary Pavement Constructed This Phase
(hatch)	Temporary Pavement Constructed in Previous Phase
(hatch)	Constructed in Previous Phases
(symbol)	Traffic Barrier Service Conc. 2 Sided
<<<<<	Impact Attenuator Service

PHASE 1 SEQUENCE OF CONSTRUCTION

Install temporary erosion & sediment (E&S) control measures throughout the length of the project.

Install signs and temporary traffic control devices throughout the project.

Install temporary saftey fence to southeast of the school parking lot along the temporary construction easement.

Eradicate existing pavement markings on Reservoir Street from approx. Station 29+75.00 where temporary matches existing, to approx. Station 37+25 where temporary matches existing.

Construct the new tennis court parking lot entrance.

Close Carlton Street between east of the new tennis court parking lot entrance and Reservoir Street in accordance with Figure TTC-34.0 (See WAPM) and as shown on the Sheet 1J(6) plans. Detour route using Mountain View Drive, Cantrell Ave, and Reservoir Street. Keep the north side of Carlton Street open to on-street parking to the best extent possible.

Eliminate the center turn lane on Reservoir Street and shift southbound traffic to the left as shown on the Phase 1 Plans and in accordance with Figure TTC-22.0 (See WAPM).

Install traffic barrier service, concrete 2 sided and impact attenuator service at the locations shown on the plans.

Construct temporary sediment basin (to later be converted to SWM pond) in NW quadrant of roundabout and the outfall stormwater pipe.

Construct widening of Reservoir Street and Carlton Street in SW quadrant of roundabout. Only construct splitter islands up to pavement level; do not construct MS-1 concrete until Phase 4, so that the pavement at those locations can be used to carry traffic during Phases 2-3. Construct temporary pavement at the locations shown on the plans.

Construct the new elementary school parking lot prior to school opening.

Utilize Figure TTC-23.0 (See WAPM) as necessary to construct new stormwater pipe crossings of Carlton Street.

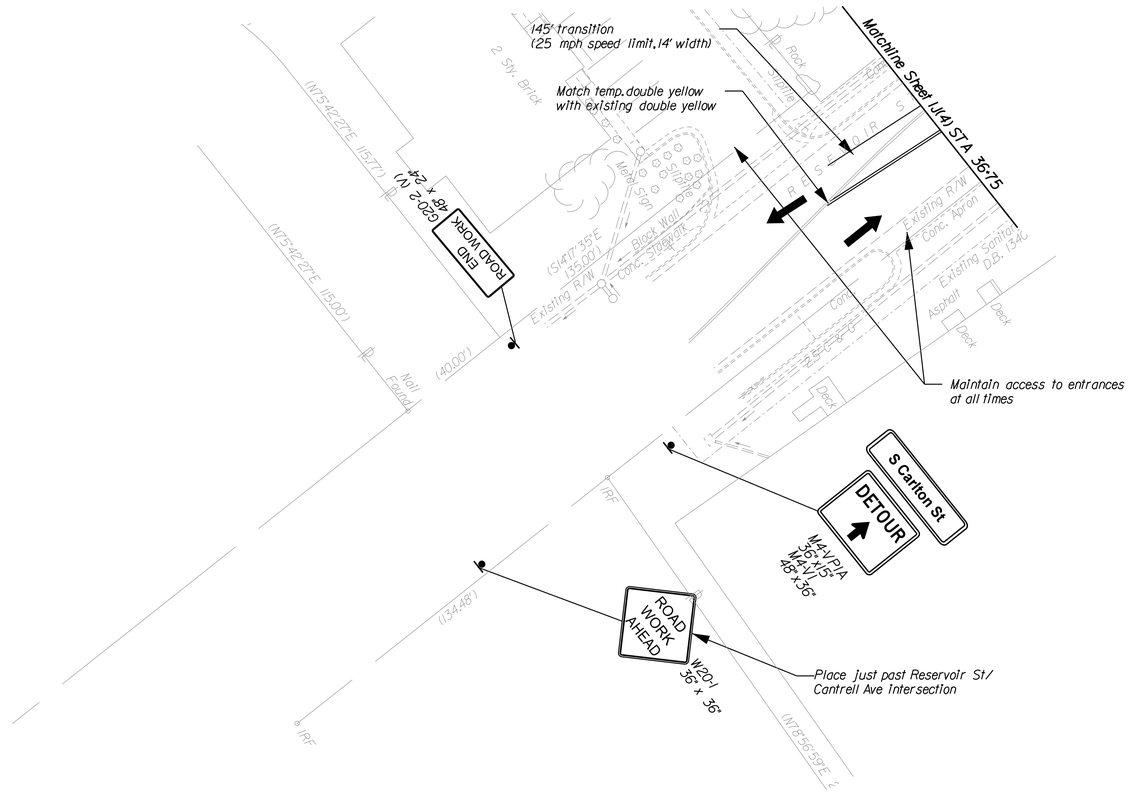
TEMP TRAFFIC CONTROL PLAN PHASE 1		
SCALE 0 25' 50'	PROJECT U000-115-R32	SHEET NO. 1J(4)

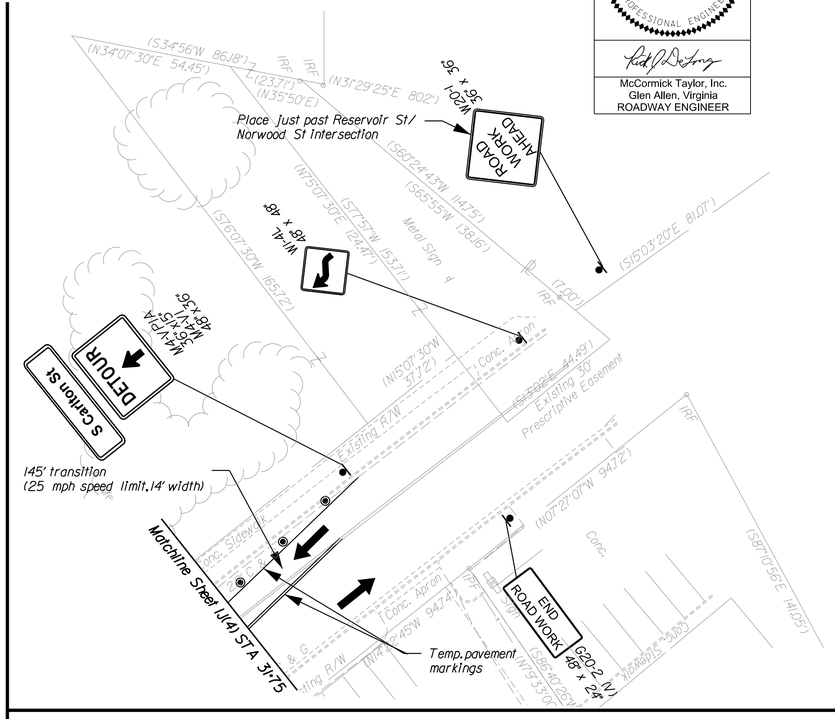
1/9/2015
8:30:58 AM

d103008_01J05.dgn
Plotted By: localuser

PROJECT MANAGER Kimberly Cameron (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600 _ _ _.
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc._ _ _ _ _.

TEMPORARY TRAFFIC CONTROL PLAN
PHASE 1

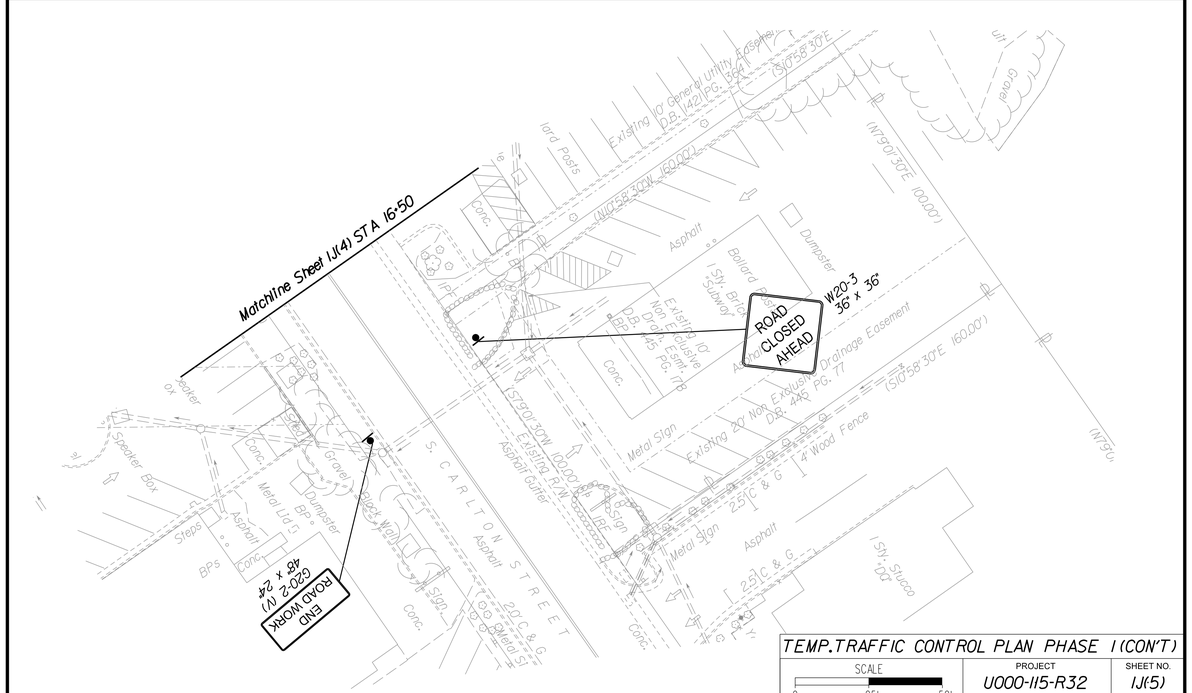




NOTE: Directional arrows are solely for purposes of showing traffic flow

LEGEND

- Temporary Sign Support
- END ROAD WORK — Sign Text
- G20-2A 48"x24" — Sign Type and Size
- Group 2 Channelizing Device
- Type III Barricade
- Work Zone
- Temporary Pavement Constructed This Phase
- Temporary Pavement Constructed In Previous Phase
- Constructed in Previous Phases
- Traffic Barrier Service Conc. 2 Sided
- Impact Attenuator Service



TEMP. TRAFFIC CONTROL PLAN PHASE I (CON'T)

SCALE	PROJECT	SHEET NO.
0 25' 50'	U000-115-R32	1J(5)

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101, R201; C501	1J(5)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

TEMPORARY TRAFFIC CONTROL PLAN PHASE 2

RICK JAMES DeLONG
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1/13/15
COMMONWEALTH OF VIRGINIA
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-115-R32, P101, R201; C501	1J(6)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Install permanent sign this phase

END ROAD WORK G20-2 (V) 48" x 24"

R7-1 12" x 18" NO PARKING ANY TIME

Remove Safety Fence This Phase

Newly constructed parking lot NOT to be used as staging area; to be used by Spotswood Elementary during this phase.

Install/maintain safety fence this phase

W1-3L 36" x 36" (orange backgrd)
W13-1 24" x 24" (orange backgrd)
15 MPH

Prop. Perm. Utility Esmt.

Prop. Temp. Constr. Esmt.

Prop. Perm. Drainage Esmt.

M6-1 21" x 15" (orange backgrd)
R5-2 24" x 24" (orange backgrd)

Matchline Sheet 1J(7) STA 31+75

Prop. R/W

145' transition (25 mph speed limit, 14' width)

PROP. CARLTON STREET B

PROP. RESERVOIR STREET B

PROP. RESERVOIR STREET D

PROP. CARLTON STREET

ROAD WORK AHEAD W20-1 36" x 36"

W1-3R 36" x 36" (orange backgrd)
W13-1 24" x 24" (orange backgrd)
15 MPH

Upon completion of new tennis court entrance, demolish entrance this phase

R1-1 48" x 48" STOP

Only construct splitter island up to pavement level. Do not install MS-1 concrete until Phase 4.

Utilize Figure TTC-23.0 (flagging) as necessary to install 18" stormwater pipe under Reservoir St

Temp. pavement markings

Construct temp. pavement at ultimate truck apron location

STOP

W1-4R 48" x 48"

R5-2 24" x 24" (orange backgrd)
M6-1 21" x 15" (orange backgrd)

Matchline Sheet 1J(7) STA 36+75

Matchline Sheet 1J(7) STA 16+50

NOTE: Directional arrows are solely for purposes of showing traffic flow

LEGEND

- Temporary Sign Support
- END ROAD WORK — Sign Text
- G20-2A 48"x24" — Sign Type and Size
- Group 2 Channelizing Device
- Type III Barricade
- Work Zone
- Temporary Pavement Constructed This Phase
- Temporary Pavement Constructed In Previous Phase
- Constructed In Previous Phases
- Traffic Barrier Service Conc. 2 Sided
- Impact Attenuator Service

PHASE 2 SEQUENCE OF CONSTRUCTION

Remove the detour signs and reopen S. Carlton Street at the beginning of this phase.

Keep southbound Reservoir Street shifted to the left as shown in the Phase 2 plans.

Construct widening of Carlton Street and Reservoir Street in the NW quadrant of the roundabout, including the central island.

Construct temporary pavement at the locations shown on the plans.

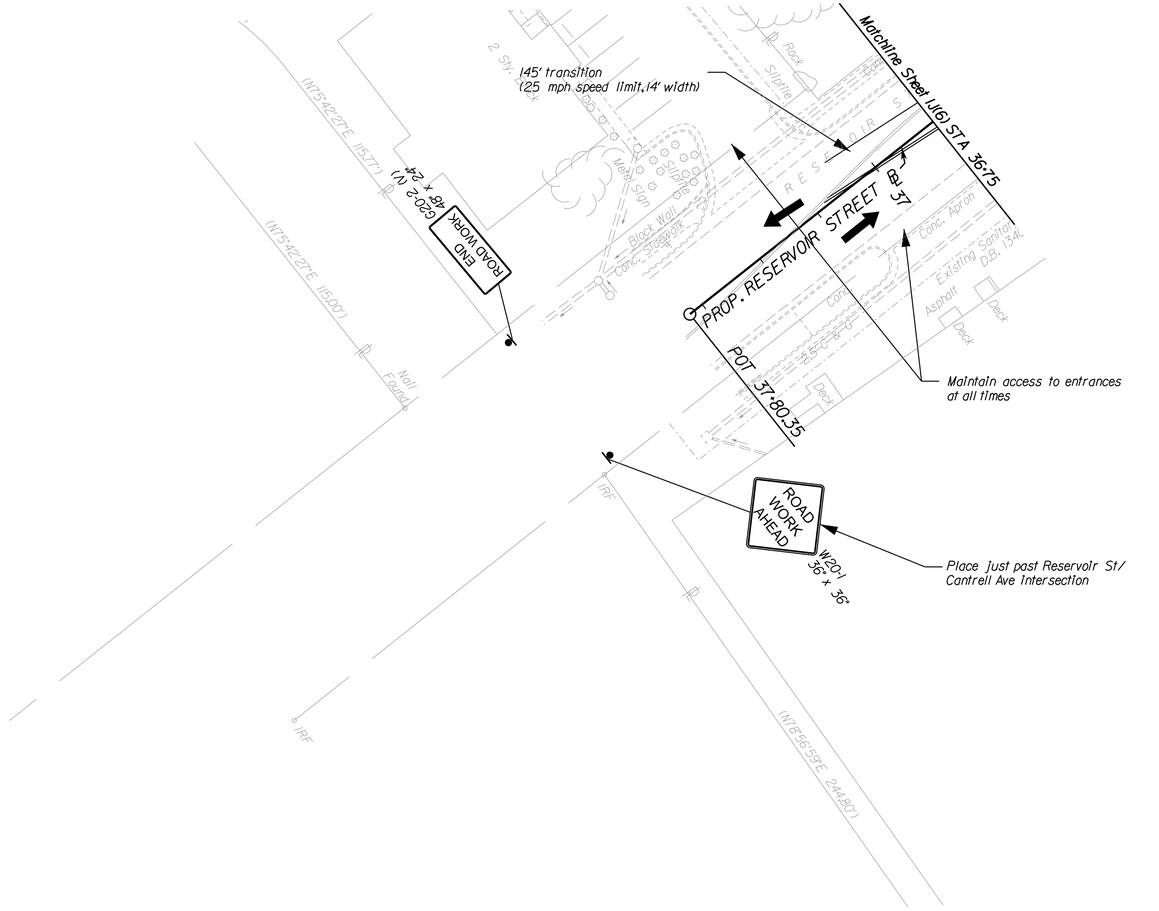
Remove temporary safety fence installed in phase 1.

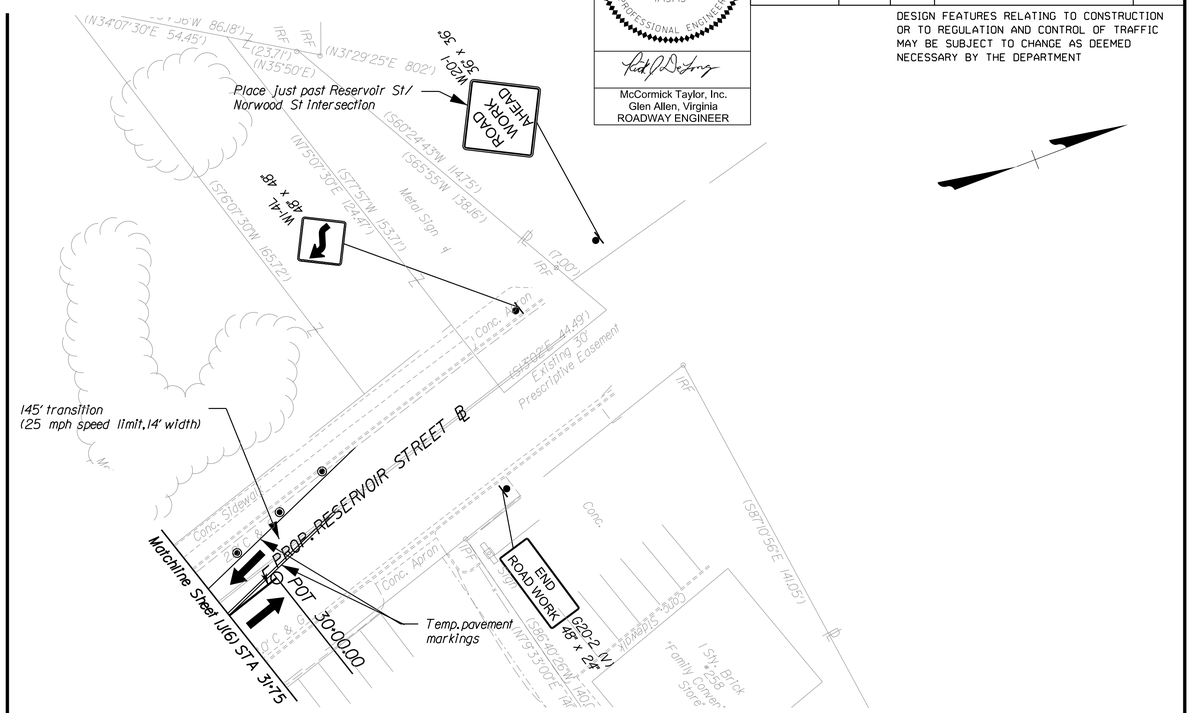
TEMP. TRAFFIC CONTROL PLAN PHASE 2

SCALE	PROJECT	SHEET NO.
0 25' 50'	U000-115-R32	1J(6)

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600 _____.
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc._____.

TEMPORARY TRAFFIC CONTROL PLAN
PHASE 2





REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101, R201; C501	1J(7)

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

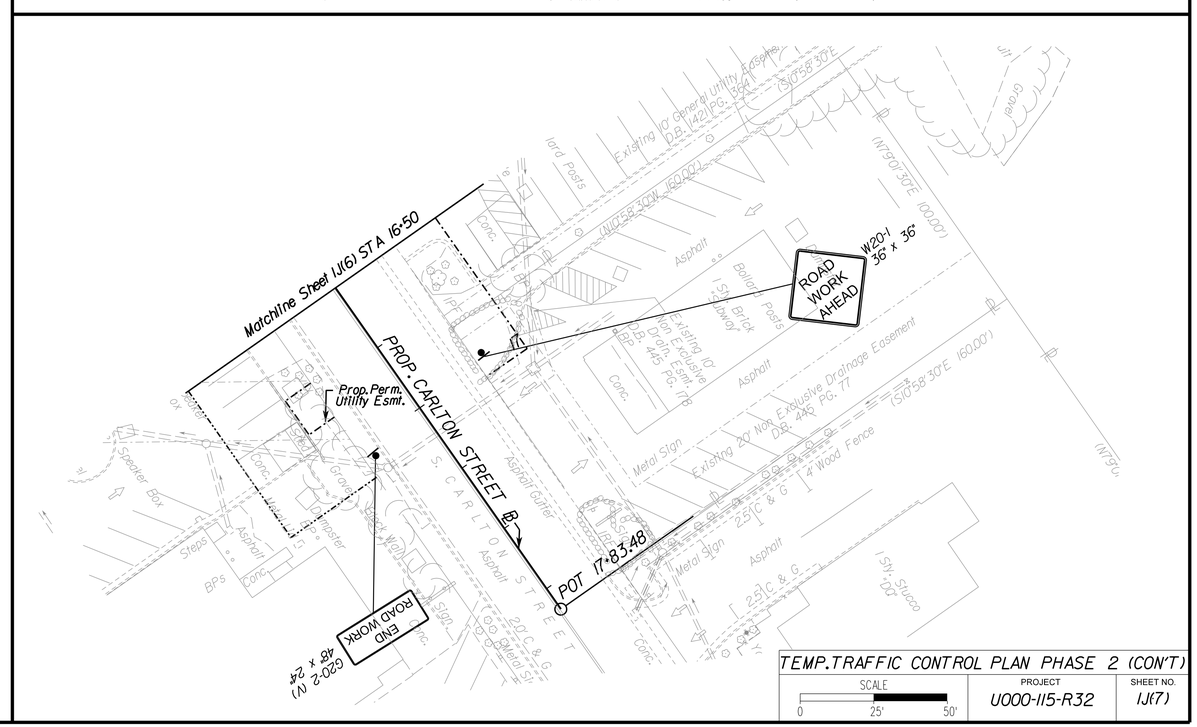
McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

NOTE: Directional arrows are solely for purposes of showing traffic flow

LEGEND

- Temporary Sign Support
- END ROAD WORK — Sign Text
- G20-2A 48"x24" — Sign Type and Size
- Group 2 Channelizing Device
- Type III Barricade
- Work Zone
- Temporary Pavement Constructed This Phase
- Temporary Pavement Constructed In Previous Phase
- Constructed In Previous Phases
- Traffic Barrier Service Conc. 2 Sided
- Impact Attenuator Service



TEMP. TRAFFIC CONTROL PLAN PHASE 2 (CON'T)

SCALE	PROJECT	SHEET NO.
0 25' 50'	U000-115-R32	1J(7)

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

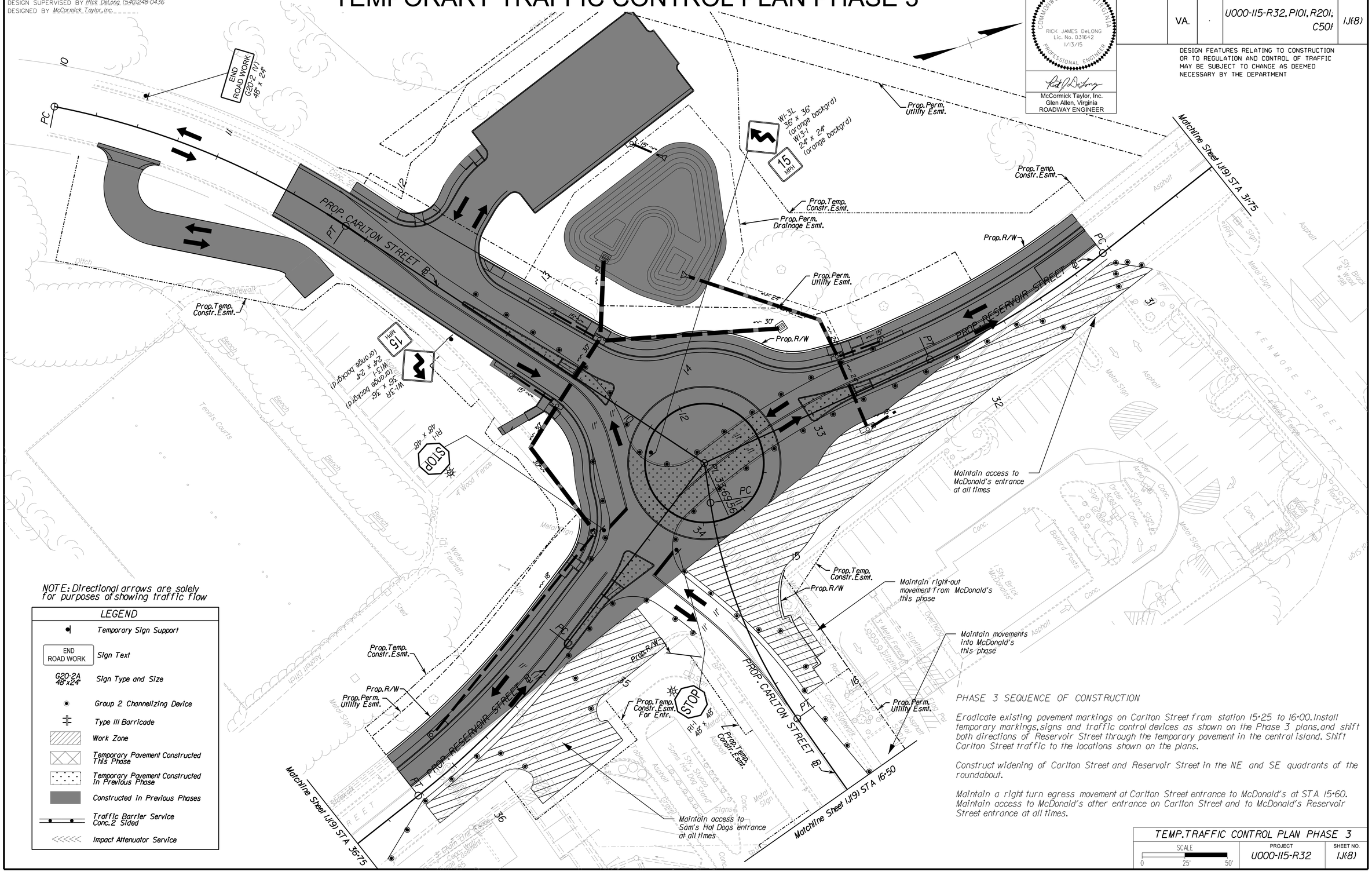
TEMPORARY TRAFFIC CONTROL PLAN PHASE 3

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-115-R32, P101, R201; C501	1J(8)

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



NOTE: Directional arrows are solely for purposes of showing traffic flow

LEGEND

- Temporary Sign Support
- END ROAD WORK — Sign Text
- G20-2A 48"x24" — Sign Type and Size
- Group 2 Channelizing Device
- Type III Barricade
- Work Zone
- Temporary Pavement Constructed This Phase
- Temporary Pavement Constructed In Previous Phase
- Constructed In Previous Phases
- Traffic Barrier Service Conc.2 Sided
- Impact Attenuator Service

PHASE 3 SEQUENCE OF CONSTRUCTION

Eradicate existing pavement markings on Carlton Street from station 15+25 to 16+00. Install temporary markings, signs and traffic control devices as shown on the Phase 3 plans, and shift both directions of Reservoir Street through the temporary pavement in the central island. Shift Carlton Street traffic to the locations shown on the plans.

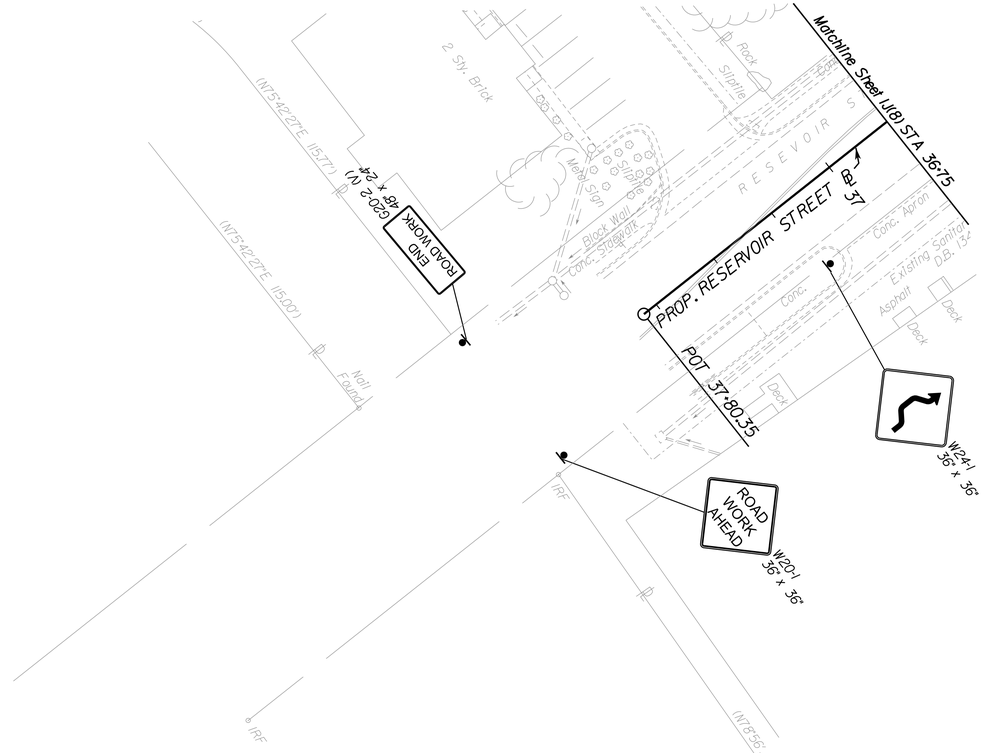
Construct widening of Carlton Street and Reservoir Street in the NE and SE quadrants of the roundabout.

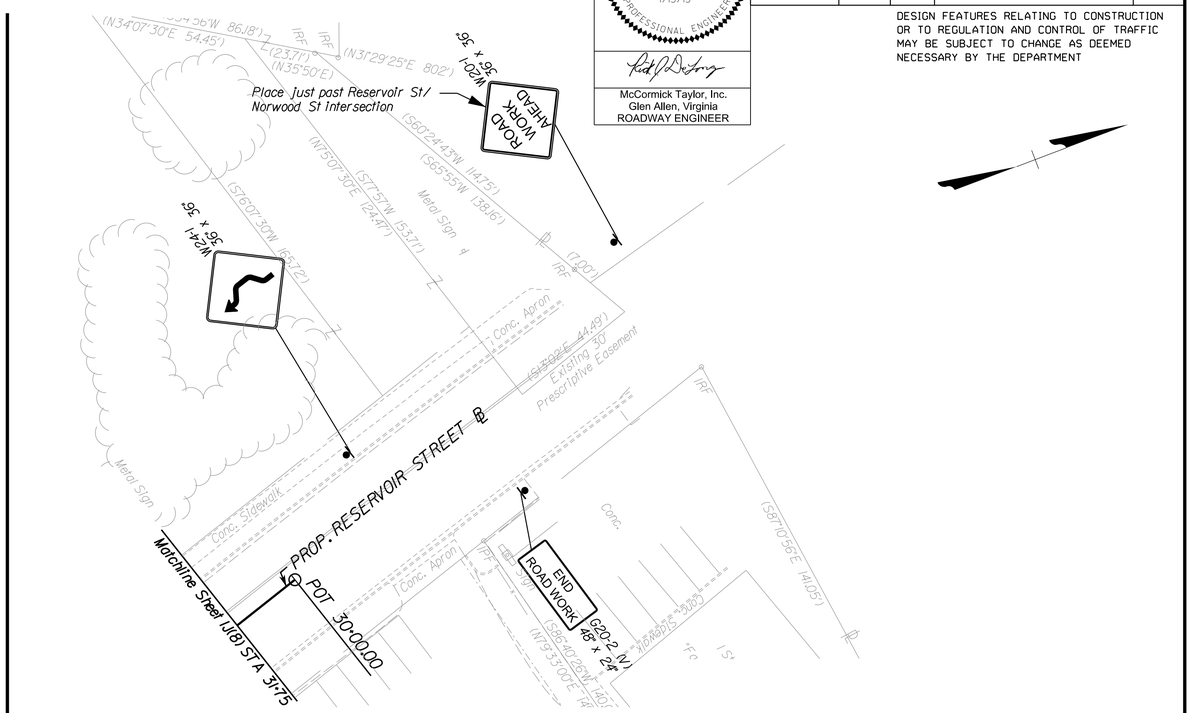
Maintain a right turn egress movement at Carlton Street entrance to McDonald's at STA 15+60. Maintain access to McDonald's other entrance on Carlton Street and to McDonald's Reservoir Street entrance at all times.

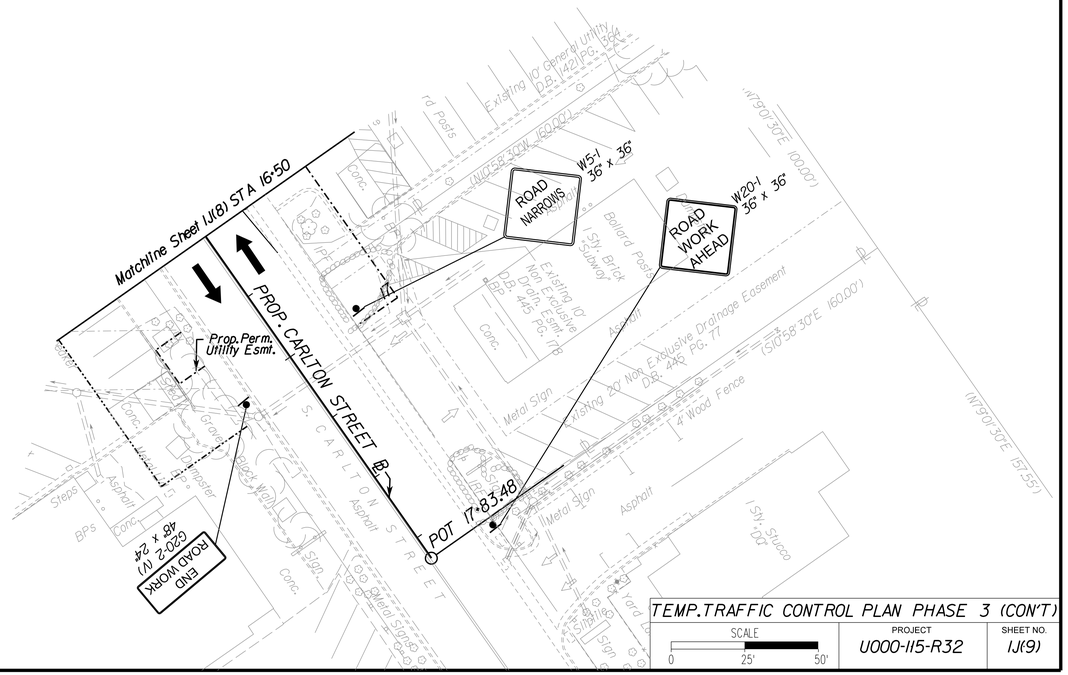
TEMP. TRAFFIC CONTROL PLAN PHASE 3		
SCALE 0 — 25' — 50'	PROJECT U000-115-R32	SHEET NO. 1J(8)

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600 _____.
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc._____.

TEMPORARY TRAFFIC CONTROL PLAN
PHASE 3







NOTE: Directional arrows are solely for purposes of showing traffic flow

LEGEND

- Temporary Sign Support
- END ROAD WORK — Sign Text
- G20-2A 48"x24" — Sign Type and Size
- Group 2 Channelizing Device
- Type III Barricade
- Work Zone
- Temporary Pavement Constructed This Phase
- Temporary Pavement Constructed In Previous Phase
- Constructed In Previous Phases
- Traffic Barrier Service Conc. 2 Sided
- Impact Attenuator Service

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101, R201; C501	1J(9)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

TEMP. TRAFFIC CONTROL PLAN PHASE 3 (CON'T)

SCALE	PROJECT	SHEET NO.
0 25' 50'	U000-115-R32	1J(9)

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

TEMPORARY TRAFFIC CONTROL PLAN PHASE 4

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101, R201; C501	1J(10)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

NOTE: Directional arrows are solely for purposes of showing traffic flow

LEGEND	
(symbol)	Temporary Sign Support
END ROAD WORK	Sign Text
G20-2A 48"x24"	Sign Type and Size
(symbol)	Group 2 Channelizing Device
(symbol)	Type III Barricade
(hatch)	Work Zone
(cross-hatch)	Temporary Pavement Constructed This Phase
(dots)	Temporary Pavement Constructed in Previous Phase
(shaded)	Constructed in Previous Phases
(symbol)	Traffic Barrier Service Conc. 2 Sided
<<<<<	Impact Attenuator Service

NOTE: Permanent roundabout signage to be installed at beginning of this phase

PHASE 4 SEQUENCE OF CONSTRUCTION

At the beginning of the phase, install permanent roundabout signage, remove temporary pavement markings, and permanently switch Reservoir Street and Carlton Street traffic to roundabout operation.

Utilizing Figure TTC-31.0 (See WAPM) as necessary, complete the splitter island construction, remove temporary pavement, complete the construction of the central island, and install the permanent pavement markings.

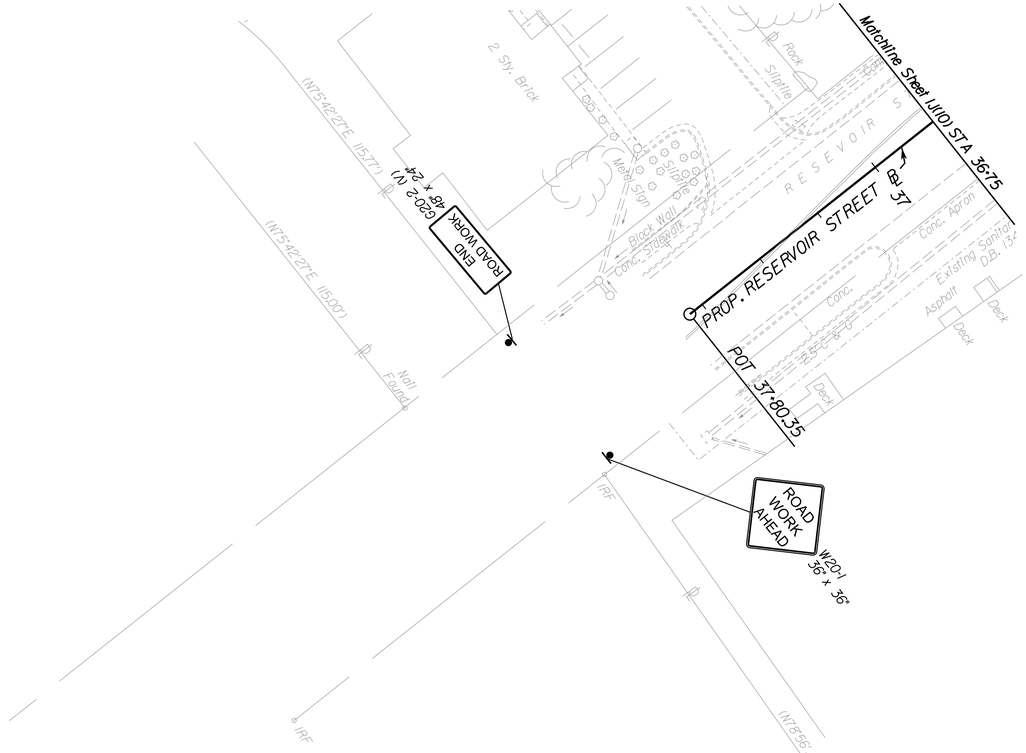
Complete construction of the SE quadrant of the roundabout.

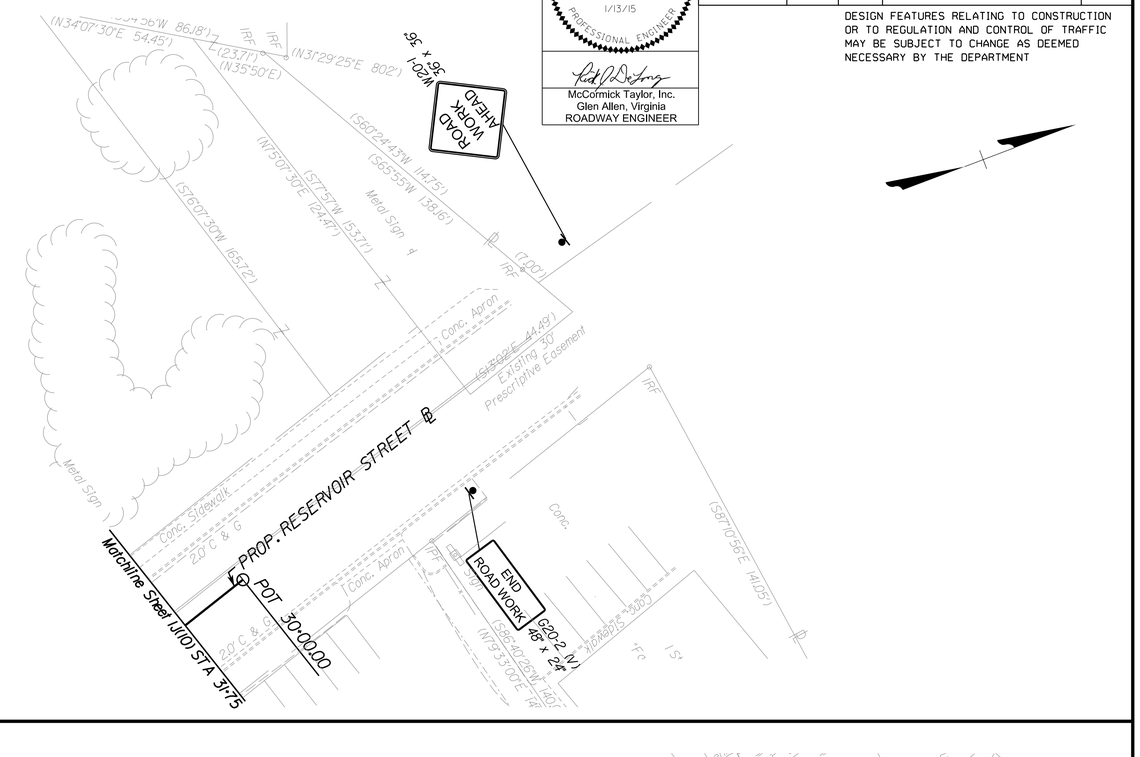
Remove all temporary traffic control devices and temporary E&S control measures.

TEMP. TRAFFIC CONTROL PLAN PHASE 4		
SCALE 0 25' 50'	PROJECT U000-115-R32	SHEET NO. 1J(10)

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600 _____.
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc._____.

TEMPORARY TRAFFIC CONTROL PLAN
PHASE 4

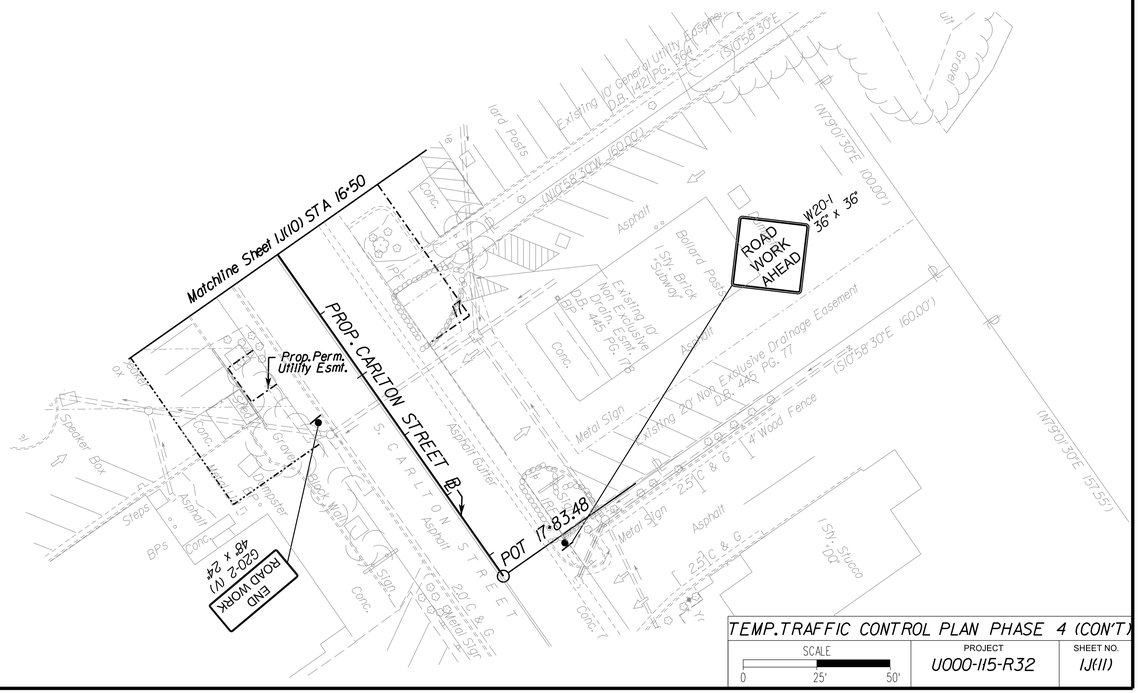




NOTE: Directional arrows are solely for purposes of showing traffic flow

LEGEND

- Temporary Sign Support
- END ROAD WORK — Sign Text
- G20-2A 48"x24" — Sign Type and Size
- Group 2 Channelizing Device
- Type III Barricade
- Work Zone
- Temporary Pavement Constructed This Phase
- Temporary Pavement Constructed In Previous Phase
- Constructed In Previous Phases
- Traffic Barrier Service Conc. 2 Sided
- Impact Attenuator Service



TEMP. TRAFFIC CONTROL PLAN PHASE 4 (CON'T)

SCALE 0 25' 50'

PROJECT	SHEET NO.
U000-115-R32	IJ(II)

REVISED	STATE	STATE			SHEET NO.
		ROUTE	PROJECT		
	VA.	.	U000-115-R32, P101, R201; C501		IJ(II)

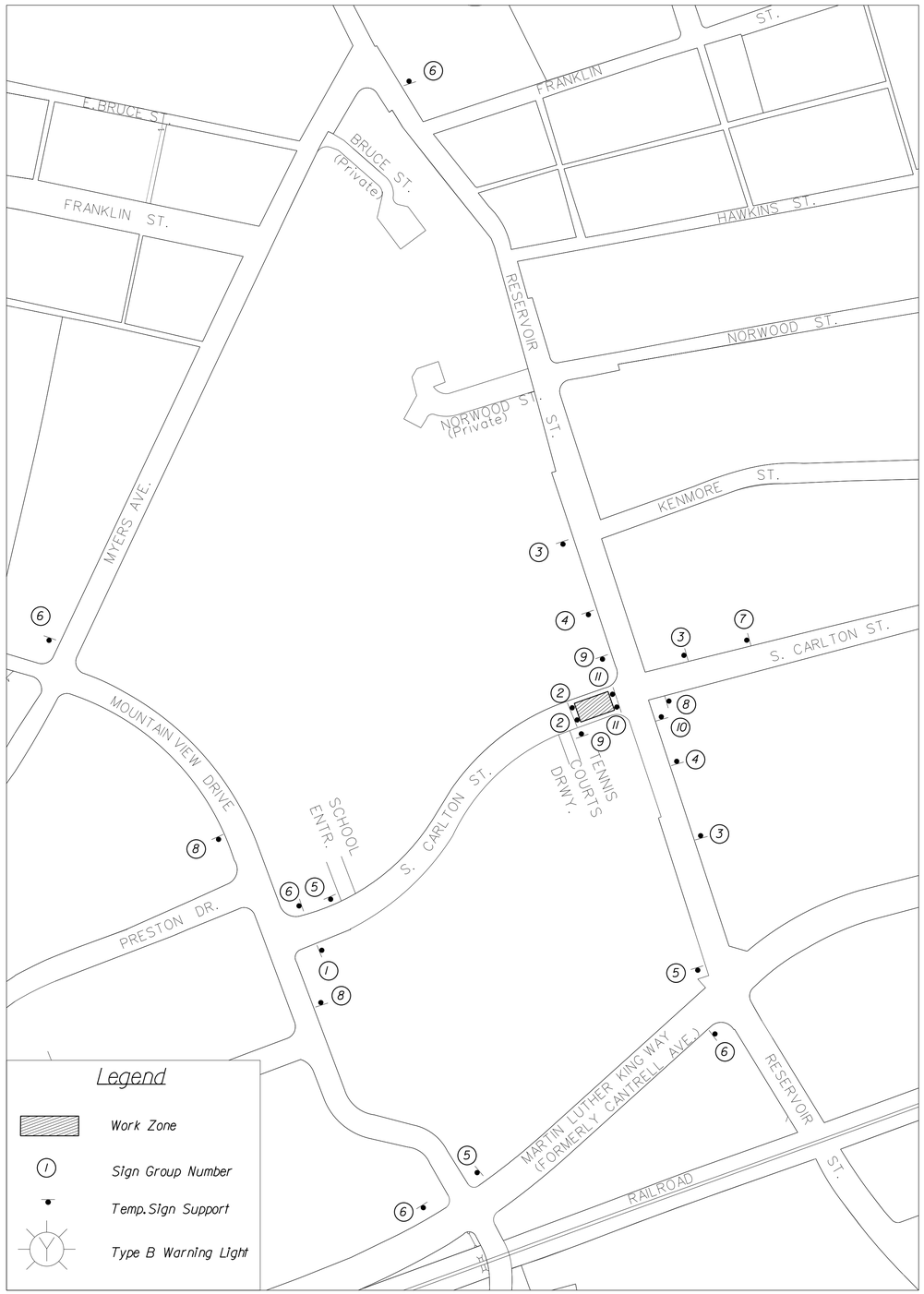
COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

SOUTH CARLTON STREET DETOUR PLAN



COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
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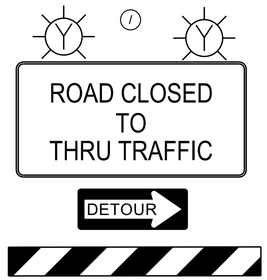
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101, R201; C501	1J(12)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

(1)



R11-4
60"x30"
M4-10R
48"x18"
TYPE 3 BARRICADE

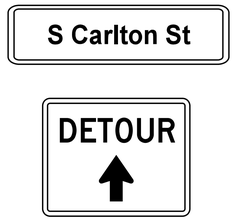
(2)

R11-2
48"x30"
TYPE 3 BARRICADE

(3)

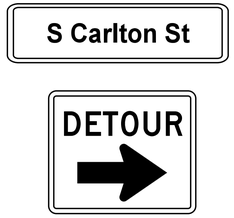
W20-2
36"x36"

(4)



M4-VP1A
36"x15"
M4-V1
48"x36"

(5)



M4-VP1A
36"x15"
M4-9R
48"x36"

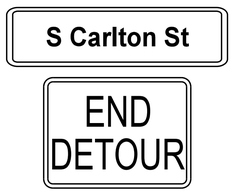
(6)

M4-VP1A
36"x15"
M4-9L
48"x36"

(7)

W20-3
36"x36"

(8)



M4-VP1A
36"x15"
M4-8A
24"x18"

(9)

R3-1
36"x36"

(10)

R3-2
36"x36"

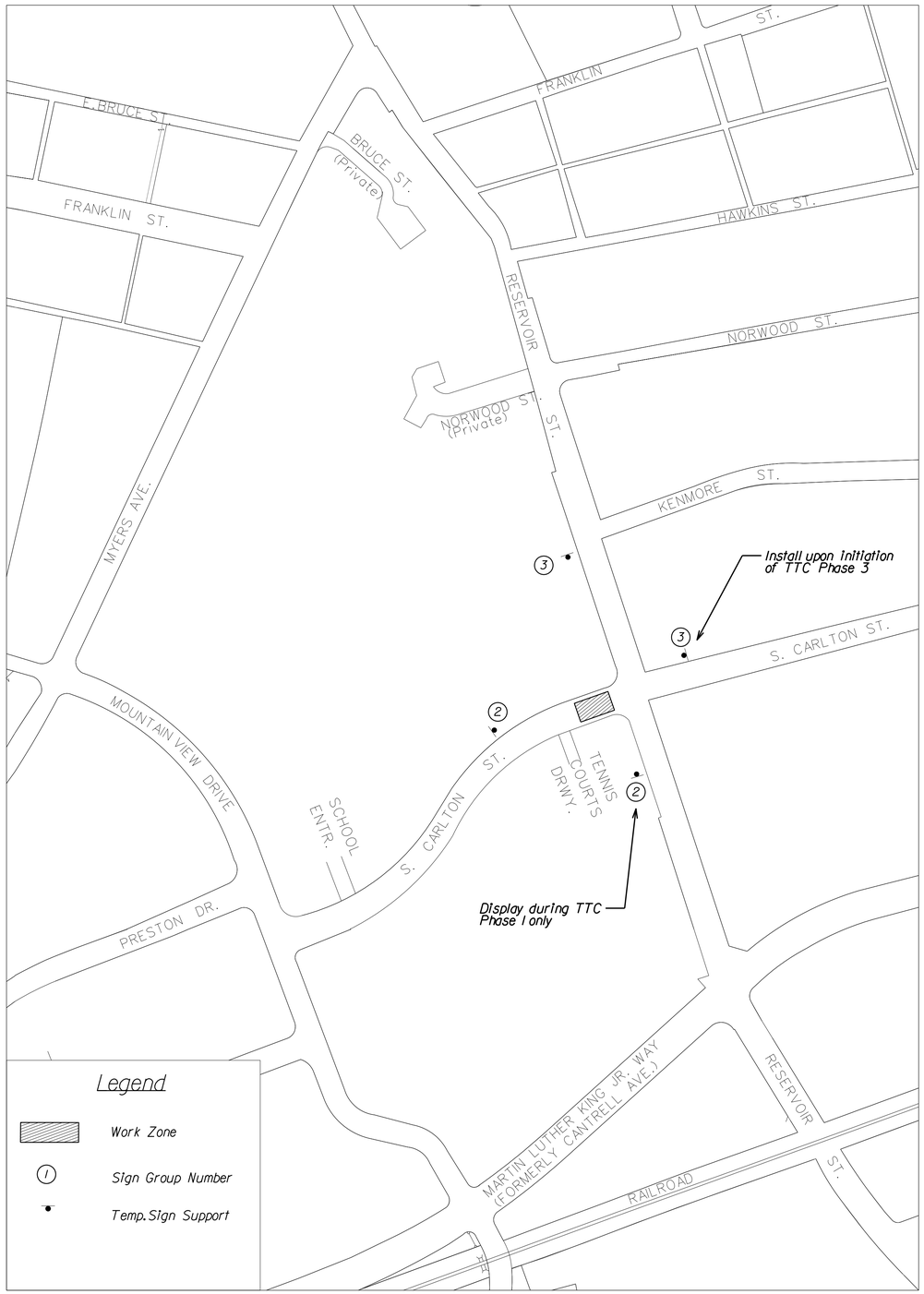
(11)

R11-2
48"x30"
M4-10L
48"x18"
TYPE 3 BARRICADE

SOUTH CARLTON STREET DETOUR PLAN		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 1J(12)

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

SOUTH CARLTON STREET PEDESTRIAN DETOUR PLAN



② SIDEWALK CLOSED

R9-9
24"x12"

③ SIDEWALK CLOSED CROSS HERE

R9-11AL
24"x18"

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101, R201; C501	1J(13)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

S.CARLTON ST. PEDESTRIAN DETOUR PLAN		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 1J(13)

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY N.K.L. Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

GENERAL NOTES

REVISED	STATE	STATE		SHEET NO.
		ROUTE	PROJECT	
	VA.	.	U000-115-R32, C501	2

GENERAL NOTES

1. Work in this project shall conform to the latest editions of the Virginia Department of Transportations (VDOT) Road and Bridge Specifications, the VDOT Road and Bridge Standards, the Virginia Erosion and Sediment Control Handbook, the Virginia Erosion and Sediment Control Regulations and the City of Harrisonburg Design and Construction Standards Manual. In the event of conflict between any of these standards, specifications or plans, the most stringent shall govern. All utilities to be dedicated to the City of Harrisonburg Municipal Water and/or Sanitary Sewer System shall be constructed and tested to conform to Commonwealth of Virginia/Department of Health Waterworks Regulations and/or Department of Environmental Quality Sewerage Collection and Treatment Regulations and the City of Harrisonburg Design and Construction Standards Manual.

2. All drain inlets shall be protected from siltation. Ineffective protection devices shall be immediately replaced and the inlet cleaned. Flushing is not an acceptable method of cleaning.

3. When the crushed stone construction entrance has been covered with soil or has been pushed into the soil by construction traffic, it shall be replaced with a depth of stone equal to that of original application.

4. The location of existing utilities as shown is approximate only. The contractor is responsible for locating all public or private utilities that lie in or adjacent to the construction site. The contractor shall be responsible for repairing, at his expense, all existing utilities damaged during construction. Forty-eight (48) hours prior to any excavation call Miss Utility 1 (800) 552-7001.

5. All underground facilities located within the City's rights-of-way shall be installed prior to the placement of any part of the pavement structure.

6. When no centerline alignment is shown for a proposed entrance, the entrance shall be constructed in the same location as the existing entrance.

7. All materials used for fill or backfill shall be free of wood, roots, rocks, boulders or any other non-compactable soil type material. Unsatisfactory materials also include man-made fills and refuse debris derived from any source.

8. Satisfactory material for use as fill for public streets include material classified in ASTM D-2487 as GW, GP, GM, GC, SW, SP, SM, SC, ML, and CL groups. The moisture content shall be controlled within plus or minus 2 percentage points of optimum to facilitate compaction. Generally, unsatisfactory materials include materials classified in ASTM D-2487 as PT, CH, MH, OL, OH, and any soil too wet to facilitate compaction. CH and MH soils may be used subject to approval of the Engineer. Soils shall have a minimum dry density of 92lb/cubic foot per ASTM D-698 and shall have a plasticity index less than 12.

9. Materials used to construct embankments for any purpose, backfill around drainage structures or in utility trenches, or any other depression requiring fill or backfill shall be compacted to 95% of maximum density as determined by the standard Proctor test as set out in ASTM standard D-698. The contractor shall, prior to any operations involving filling or backfilling, submit the result of the Proctor test together with a certification that the soil tested in representative of the materials to be used on the project. Tests shall be conducted by a certified materials testing laboratory and the certifications made by a licensed professional Engineer representing the laboratory.

10. Embankment fill and trench backfill shall be placed in lifts at a maximum uncompacted depth of 8-inches and 6-inches, respectively. Density tests shall be conducted at the following minimum frequencies:
    (a) Embankment for roads, streets, dams, etc.: One test per lift per 10,000 square feet of lift.
    (b) Backfill around structures and in trenches: One test per lift per 500 lineal feet of trench.

11. Compaction tests for street pavement structure shall be made in cut and fill areas at the following minimum frequencies:
    (a) Sub-Grade: One test per lane per 500 lineal feet.
    (b) Stone Base: One test per lane per 6" compacted lift per 500 lineal feet.
    (c) Hot Asphaltic Concrete: One test per lane per lift per 500 lineal feet.

12. All excavations, including trenches, shall be kept dry to protect their integrity.

13. Test results shall be submitted to the Engineer. Failure to conduct density tests shall be cause for non-acceptance of the facility. Tests shall be conducted at the sole cost of the Contractor.

14. All pavement markings and traffic flow arrows shown on the roadway construction plans are schematic only. The actual location and application of pavement markings shall be in accordance with Section 704 of the applicable VDOT Road and Bridge Specifications, MUTCD, sequence of construction/traffic control plans, pavement marking plan sheets 5A thru 5B and as directed by the Engineer.

15. Pavement design in based upon sub grade CBR of 4 and a RF of 2.

16. City Inspectors have full authority to reject fill or backfill materials, require undercutting or sub grade stabilization, require provisions for sub drainage, or require other measures which affect the integrity of road and utility construction. Failure to comply with Inspectors' directives shall be cause for nonacceptance of the facility.

17. Traffic control on public streets shall be in conformance with the Manual of Uniform Traffic Control Devices and as further directed by City Inspectors.

18. Any discrepancies found between the drawings and specifications and site conditions or any inconsistencies or ambiguities in drawings or specifications shall be immediately reported to the Engineer, in writing, who shall promptly address such inconsistencies or ambiguities. Work done by the contractor after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the contractor's risk.

19. A preconstruction conference shall be held prior to the start of construction. The contractor shall arrange the meeting with the Public Works Department and/or Engineer.

20. Install City standard street centerline monuments where required for new streets per City standards. Coordinate with City Surveyor for placing of monuments. The City will provide monuments and contractor will be responsible for installation of monuments.

21. Topsoil and seed all disturbed areas not otherwise covered.

22. Temporary construction easements shown are being provided by private property owners in total cooperation with the City. Such easements are for access and temporary occupation only as necessary to complete the work. Unless an owner specifically agrees, contactor shall not use these areas for long term storage of materials, equipment or vehicles (including employee vehicles) and shall endeavor to limit impact on these areas to a minimum. If owner is to agree contractor shall provide written agreement to the City. Contractor shall cooperate with property owners to address their concerns over use of, or access to, their property. All damage to public and private properties caused by the contactor's operations or negligence, beyond that defined by the work itself, shall be repaired to the City's satisfaction at no additional cost to the owner.

23. Provide rodding and concrete thrust blocking of waterline appurtenances in accordance with City standards. Provide waterline taps as necessary for pressure testing and bacteriological sampling. All waterline testing is the contractor's responsibility. City Inspector shall witness pressure test and collect samples.

24. Grass channels, whether detailed or a result of slope ties, shall be overseeded, protected, maintained and reseeded as necessary to establish erosion-resistant grass cover.

25. Pipe lengths shown are from center-to-center of structures.

27. Existing edge of pavement (E.P.) is defined as face of gutter in curbed sections or painted edge line in shoulder sections. At locations shown on the plan sheets, prior to widening, saw cut existing pavement 1' from E.P. and remove asphalt and stone material beyond.

28. "To be removed" and "remove" indicates contractor's work unless noted to be by others.

29. Driveway replacements shall match existing driveways, whether gravel, concrete or paved. Minimum thickness for gravel drives shall be 6 inches of compacted 21A Stone. Minimum paved driveway section shall be 6 inches compacted 21A stone with 2 inches SM-12.5D asphaltic concrete.

30. Limits of all driveway replacements shall be confirmed in field with the Public Works Inspector and/or Public Works Engineer.

31. Precast units adjacent to cast-in-place concrete items, such as sidewalks, ditches, gutters and flumes, shall be connected to the adjacent unit by means of No.4 smooth steel dowels spaced on approximately 12 - inch centers throughout the contact length and extend at least into both the precast unit and the cast-in place item. Refer to VDOT Road and Bridge Spec's, detail Jan.1994, sect. 302.03, page 293, paragraph (B) IE

33. The contractor shall control dust caused by construction activities per VDOT Specifications. The cost for allaying dust shall be included in the price bid for Traffic Control.

34. The material listed below will be paid for on a tonnage basis on this project. The theoretical tonnage shown on these plans is based on the weight shown hereon. The weight will vary in accordance with the specific gravity of the aggregates and the asphaltic content of the mix actually used to secure the design depth. The weight of the asphalt concrete is based on 95% of theoretical maximum density.

35. Asphalt Concrete Surface Type SM-12.5D @ 220 lbs. per sq.yd., Asphalt Concrete Base Type BM-25.0 @ 8" depth., Aggregate Base Material Type 1 No.21A @ 10" depth.

36. When no centerline alignment is shown for a proposed entrance, the entrance shall be constructed in the same location as the existing entrance.

37. Contractor may utilize any City owened parcel for purposes of staging.

DEMOLITION / RELOCATION NOTES

1. Unless a separate pay item is listed, cost for removal of an item is included in the contract unit price for the corresponding new item or the cost shall be incidental to other items.

2. Temporary and permanent relocation of all signs and mailboxes in project area shall be performed in accordance with section 104.05 of the VDOT standard specifications as well as City sign specifications. Contractor shall consider that all re-installed signs must meet MUTCD, and the Virginia supplement of the MUTCD, height standards regardless of height of existing sign. New mailbox locations must allow for minimum 3.5 ft. clearance from back edge of mailbox to back edge of sidewalk.

3. Existing utility poles, overhead and underground utility lines and appurtenances (gas, electric, telephone, cable, computer) are to be relocated by utility companies as necessary to accommodate the work. Some of this may take place during the project. Contractor shall coordinate his work with utility companies to ensure an orderly schedule for this work. Contractor shall be flexible in working around utilities yet to be relocated, and shall give sufficient notice to utility companies if any such relocations are on the critical path for construction of contract items.

4. Remove all curb and gutter, entrance gutter and concrete entrances within project area as necessary to widen road and to construct new entrances and curb and gutter per plans.

5. Existing large trees and shrubs are shown. Smaller trees and shrubs may not be shown. Contractor shall examine site prior to bid and determine extent of tree and shrub removal necessary to complete other work, and shall include the cost for all such removal in his bid item for "clearing and grubbing". Coordinate with private owners' relocation of trees and shrubs, providing advanced notice where work scheduling requires such removal.

6. Refer to water and sewer requirements on Sheet 6(1) for information on relocating and adjusting water and sewer facilities.

7. The cost of removal of all existing concrete items located in the area to be graded, including, but not limited to the following, shall be included in the price bid for earthwork: curb, curb and gutter, curb ramps, sidewalk, entrances, drop inlets, light foundations, median islands.

EROSION CONTROL NOTES

1. Erosion and sediment control measures shall be installed and maintained in accordance with the Virginia Erosion and Sediment Control Handbook. They shall be maintained continuously, relocated when and as necessary, and shall be checked after every rainfall. Seeded areas shall be checked regularly and shall be watered, fertilized, reseeded and mulched as necessary to obtain a dense stand of grass.

2. Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant (undisturbed) for longer than 30 days.

3. During construction of the project, soil stockpiles and borrow areas shall be stabilized or protected with sediment trapping measures. The contractor is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site.

4. A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered until a ground cover is achieved that, in the opinion of the City Erosion Control Administrator or his designated agent, is uniform, mature enough to survive and will inhibit erosion.

5. Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land disturbing activity and shall be made functional before upslope land disturbance takes place.

6. Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
    A. No more than 500 linear feet of trench may be opened at one time.
    B. Excavated material shall be placed on the uphill side of trenches.
    C. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property.
    D. Restabilization shall be accomplished in accordance with the contract documents.
    E. Applicable safety regulations shall be complied with.

7. Where construction vehicle access routes intersect paved public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a public road surface, the road shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner.

8. All unstabilized areas are to drain to approved sediment control measures at all times during land disturbing activities and during site development until final stabilization is achieved.

9. The contractor is responsible for installation of any additional erosion control measures necessary to prevent erosion and sedimentation as determined by the City Erosion Control Administrator.

10. Stabilization measures shall be applied to earthen structures such as dams, dikes, and diversions immediately after installation.

11. All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the City Erosion Control Administrator. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

12. During dewatering operations, water shall be pumped into an approved filtering device.

The following symbols are used to depict Erosion Control items in the plan assembly:

- EC-2 — Denotes Protective Covering, St'd. EC-2
- EC-3A / EC-3B / EC-3C — Denotes Soil Stabilization Mat. St'd. EC-3 Type A, B or C
- TFB — Denotes Temporary Filter Barrier, St'd EC-5
- TSF — Denotes Temporary Silt Fence, St'd EC-5
- TDC — Denotes Temporary Diversion Channel, St'd EC-12
- DD — Denotes Temporary Diversion Dike, St'd EC-9
- TC-1 — Denotes Turbidity Curtain, Type - Impervious
- TC-P — Denotes Turbidity Curtain, Type - Pervious
- RCD-1 — Denotes Rock Check Dam, Type I: St'd EC-4
- RCD-2 — Denotes Rock Check Dam, Type II: St'd EC-4
- IP-A — Denotes Inlet Protection, Type A: St'd EC-6
- IP-B — Denotes Inlet Protection, Type B: St'd EC-6

ALLOWABLE TYPE OF STORM SEWER PIPE (UNLESS OTHERWISE SHOWN ON PLANS)
(SEE ROAD AND BRIDGE STANDARD PC-1 FOR HEIGHT OF COVER LIMITATIONS FOR EACH TYPE)

LOCATION	CONCRETE	CORRUGATED STEEL ALUMINUM COATED TYPE 2 FULLY CONCRETE LINED	ALUMINUM COATED TYPE 2 STEEL SPIRAL RIB	POLYMER COATED (10/10) CORRUGATED STEEL SPIRAL RIB	POLYMER COATED (10/10) CORRUGATED STEEL DOUBLE WALL (SMOOTH INTERIOR)	ALUMINUM SPIRAL RIB	POLYVINYLCHLORIDE (PVC) RIBBED PIPE (SMOOTH INTERIOR)	POLYETHYLENE (PE) CORRUGATED TYPE S	POLYPROPYLENE (PP) TYPE D OR S
All pipes unless otherwise noted on drainage descriptions	X				X		X	X	X

GENERAL NOTES		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 2

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

TYPICAL SECTIONS

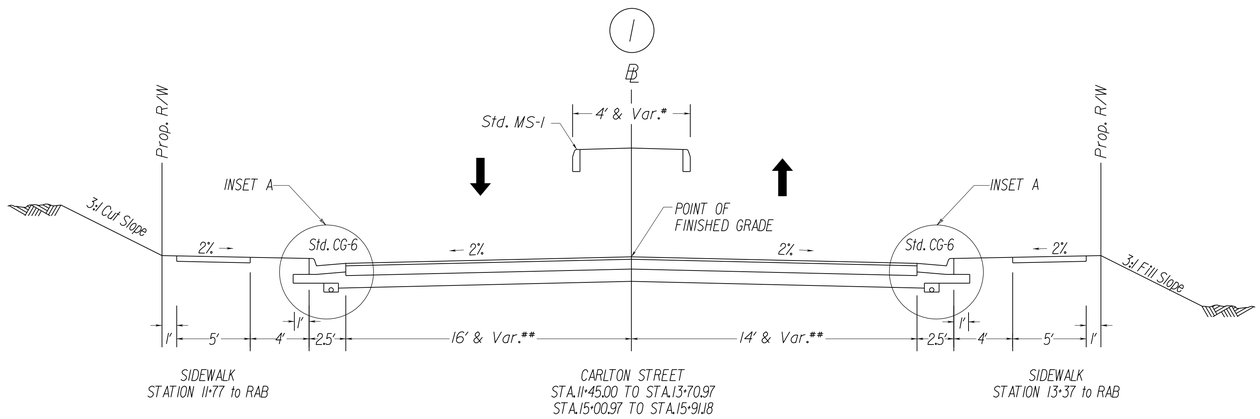
COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-115-R32, C501	2A

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

1



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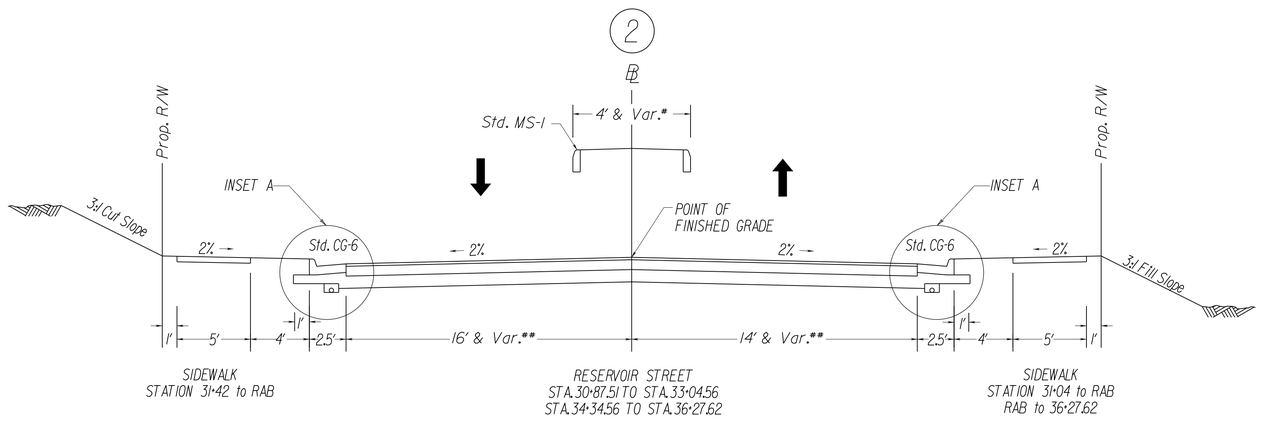

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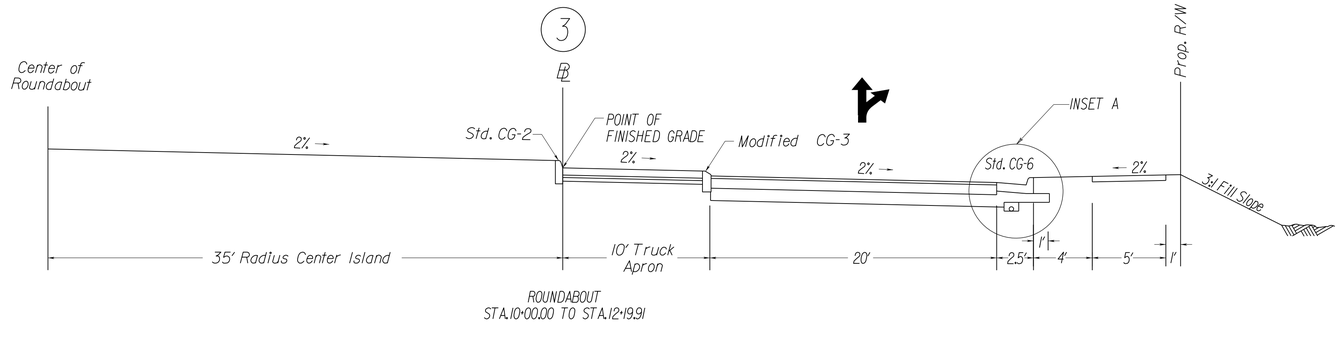
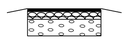


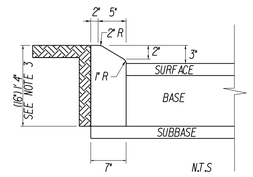
TEMPORARY PAVEMENT TYPICAL SECTION



1.5" SM-12.5D
3" BM-25.0D
15.5"/Variable Aggr. Base Mat'l. Ty. I No. 21B

CG-3 MODIFIED

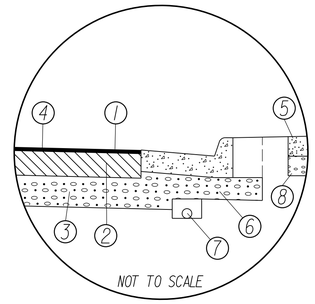
FOR USE ON ROUNDABOUT TRUCK APRONS ONLY



NOTES:

1. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
2. CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
3. THE DEPTH OF CURB MAY BE REDUCED AS MUCH AS 3" (13" DEPTH) OR INCREASED AS MUCH AS 3" (19" DEPTH) IN ORDER THAT THE BOTTOM OF THE CURB WILL COINCIDE WITH THE TOP OF A COURSE OF THE PAVEMENTS SUBSTRUCTURE. OTHERWISE, THE DEPTH IS TO BE 16" AS SHOWN. NO ADJUSTMENT IN THE PRICE BID IS TO BE MADE FOR A DECREASE OR AN INCREASE IN DEPTH.
4. THE MODIFICATION TO THE STANDARD CG-3 IS TO REDUCE THE EXPOSED HEIGHT OF THE CURB AS SHOWN. MODIFIED CURB SHALL BE PAID FOR AS STANDARD CG-3.

INSET A



1. 2" ASPHALT CONCRETE SURFACE COURSE TYPE SM-12.5D
2. 8" ASPHALT CONCRETE BASE COURSE TYPE BM-25.0D
3. 10" AGGREGATE BASE MATERIAL TYPE I NO. 21B (For Subbase)
4. ASPHALT CONCRETE SURFACE COURSE TYPE SM-12.5D @ 220 LBS. PER SQ. YD. (MILL AND OVERLAY WHERE APPLICABLE)
5. 4" HYDRAULIC CEMENT CONCRETE SIDEWALK
6. VAR. DEPTH (MIN. 4") AGGREGATE BASE MATERIAL TYPE I NO. 21B (For Subbase)
7. ST'D UD-4 UNDERDRAIN REQ'D
8. 4" AGGREGATE BASE MATERIAL TYPE I NO. 21B

* MEDIAN WIDTH VARIES, SEE PLANS AND CROSS SECTIONS FOR DETAILS

CARLTON STREET MEDIAN
STA. 12+66.06 TO STA. 13+72.54
STA. 15+04.37 TO STA. 15+90.28

RESERVOIR STREET MEDIAN
STA. 31+48.80 TO STA. 33+04.05
STA. 34+34.79 TO STA. 35+04.97

** ENTRY & EXIT ROUNDABOUT LANE WIDTHS VARY, SEE PLANS AND CROSS SECTIONS FOR DETAILS

TYPICAL SECTIONS		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 2A

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

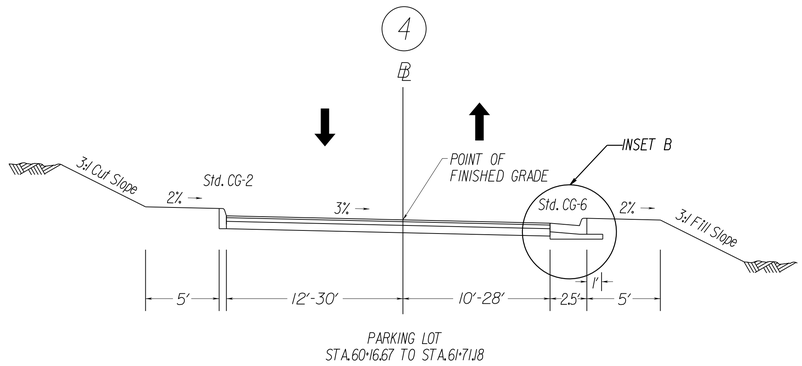
TYPICAL SECTIONS

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

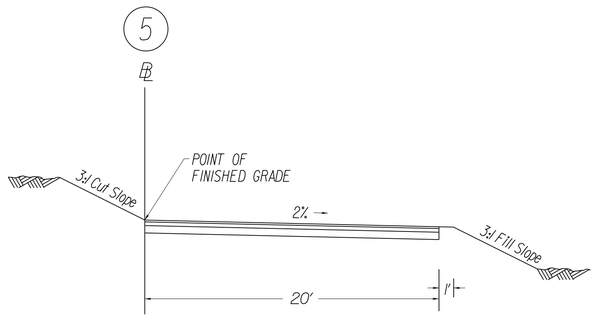
McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-115-R32, C501	2B

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

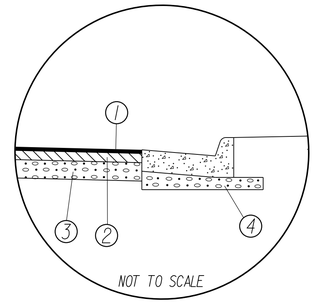


PARKING LOT
STA. 60+16.67 TO STA. 61+71.18



TENNIS COURT
STA. 50+15.00 TO STA. 51+54.43

INSET B

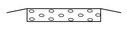


NOT TO SCALE

1. ASPHALT CONCRETE SURFACE COURSE TYPE SM-9.5AL @ 165 LBS. PER SQ. YD.
2. 3" ASPHALT CONCRETE BASE COURSE TYPE BM-25.0
3. 6" AGGREGATE BASE MATERIAL TYPE I NO. 21B
4. VAR. DEPTH (MIN. 4") AGGREGATE BASE MATERIAL TYPE I NO. 21A

PRIVATE AND COMMERCIAL ENTRANCES

TYPE I
Crusher Run Aggr.



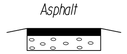
6" Crusher Run
Aggr. 25 or 26

TYPE II
Concrete

Concrete Entrance Pavement
7" HES
4" Aggr. Base Mat'l. Ty. I No. 21B

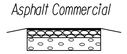
NOT TO SCALE

TYPE III
Asphalt



Asphalt Conc. Type
SM-9.5AL @ 180 Lbs. per S.Y.
4" Aggr. Base Mat'l. Ty. I No. 21B

TYPE IV
Asphalt Commercial



Asphalt Conc. Type
SM-12.5D @ 165 Lbs. per S.Y.
4" Asphalt Conc. Base Course BM-25.0D
6" Aggr. Base Mat'l. Ty. I No. 21B

NOTES: 1) Additional stone or backfill may be needed in order to obtain propper elevation on entrances in fill sections.
2) The type of entrance (I, II, III, IV) to be constructed will be determined by the existing condition at the time of construction.

TYPICAL SECTIONS (CON'T)		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 2B

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

DRAINAGE DESCRIPTIONS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32; C501	2C

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

3-1
I Std DI-2B Req'd
H = 4.3' L = 18'
Inv.= 1386.90'
Drop Inlet Silt Trap Type B Req'd

3-2
I Std DI-3C Req'd
H = 4.7' L = 8'
Inv.= 1386.38'
Drop Inlet Silt Trap Type B Req'd

3-3
I Std DI-3B Req'd
H = 4.6' L = 12'
Inv.= 1386.70'
Drop Inlet Silt Trap Type B Req'd

3-4
I Std DI-3C Req'd
H = 4.9' L = 6'
Inv.= 1386.11'
Drop Inlet Silt Trap Type B Req'd

3-1 3-2
17' - 18" Storm Sewer Pipe Req'd (Cover = 2.5')
Inv.(In) = 1386.90' Inv.(Out) = 1386.50'
S = 0.02 ft/ft

3-2 3-4
43' - 24" Storm Sewer Pipe Req'd (Cover = 2.5')
Inv.(In) = 1386.38' Inv.(Out) = 1386.15'
S = 0.02 ft/ft

3-3 3-4
25' - 15" Storm Sewer Pipe Req'd (Cover = 3.0')
Inv.(In) = 1386.70' Inv.(Out) = 1386.30'
S = 0.04 ft/ft

3-5
4.6 LF Std MH-1 or 2 Req'd
Inv.= 1385.90'
1 MH-1 Frame & Cover Req'd

3-6
1 Std 24" ES-1 or 2 Req'd
Inv.= 1385.50'
8 TON EC-1, Class 1 Req'd

3-4 3-5
21' - 24" Storm Sewer Pipe Req'd (Cover = 2.5')
Inv.(In) = 1386.11' Inv.(Out) = 1386.00'
S = 0.05ft/ft

3-5 3-6
78' - 24" Storm Sewer Pipe Req'd (Cover = 2.5')
Inv.(In) = 1385.90' Inv.(Out) = 1385.50'
S = 0.01 ft/ft

3-7
I Std DI-3B Req'd
H = 5.7' L = 16'
Inv.= 1385.75'
Drop Inlet Silt Trap Type B Req'd

3-8
Not Used

3-7 3-11
30' - 15" Storm Sewer Pipe Req'd (Cover = 4.0')
Inv.(In) = 1385.75' Inv.(Out) = 1385.25'
S = 0.03 ft/ft

3-9
7.3' Modified SWM-1 Req'd
Bottom Elev = 1382.50'
2.5" Water Quality Orifice Req'd Inv.= 1386.00'
Create 4'x0.5' rectangular weir at top of structure
See Sheet 2E for details
Structure to be cast in place
Structure to be modified for Temporary Sediment Basin

3-10
1 Std DI-7 Req'd
H = 4.0' Inv.= 1386.00'
Grate Type BIII Req'd
Drop Inlet Silt Trap Type A Req'd

3-11
1 Std DI-3C Req'd
H = 5.9' L = 6'
Inv.= 1385.10'
Drop Inlet Silt Trap Type B Req'd

3-12
1 Std DI-3B Req'd
H = 6.5' L = 12'
Inv.= 1385.15'
Drop Inlet Silt Trap Type B Req'd

3-13
1 Std DI-3C Req'd
H = 6.8' L = 6'
Inv.= 1384.45'
Drop Inlet Silt Trap Type B Req'd

3-9 3-11
45' - 30" Storm Sewer Pipe Req'd (Cover = 3.0')
Inv.(In) = 1385.50' Inv.(Out) = 1385.15'
S = 0.02 ft/ft

3-10 3-11
104' - 30" Storm Sewer Pipe Req'd (Cover = 2.0')
Inv.(In) = 1386.00' Inv.(Out) = 1385.15'
S = 0.008 ft/ft

3-11 3-13
44' - 30" Storm Sewer Pipe Req'd (Cover = 1.0')
Inv.(In) = 1385.10' Inv.(Out) = 1384.45'
S = 0.01 ft/ft

3-12 3-13
30' - 15" Storm Sewer Pipe Req'd (Cover = 5.0')
Inv.(In) = 1385.15' Inv.(Out) = 1384.55'
S = 0.03 ft/ft

3-14
9.9 LF Std MH-1 or 2 Req'd
Inv.= 1384.10'
1 MH-1 Frame & Cover Req'd

3-15
1 Std DI-3AA Req'd
H = 8.2' Inv.= 1383.30'
Drop Inlet Silt Trap Type B Req'd

3-16
1 Std DI-3B Req'd
H = 3.8' L = 12'
Inv.= 1382.50'
Connect to Exist 18" RCP (Match Invert)
Drop Inlet Silt Trap Type B Req'd

3-17
1 Std DI-3C Req'd
H = 5.4' L = 6'
Inv.= 1389.00'
Drop Inlet Silt Trap Type B Req'd

3-18
1 Std 15" ES-1 or 2 Req'd
Inv.= 1388.25'
5 TON EC-1, Class 1 Required

3-13 3-14
26' - 30" Storm Sewer Pipe Req'd (Cover = 4.0')
Inv.(In) = 1384.45' Inv.(Out) = 1384.10'
S = 0.01 ft/ft

3-14 3-15
59' - 30" Storm Sewer Pipe Req'd (Cover = 5.5')
Inv.(In) = 1384.10' Inv.(Out) = 1383.30'
S = 0.01 ft/ft

3-15 3-16
149' - 18" Storm Sewer Pipe Req'd (Cover = 2.5')
Inv.(In) = 1383.30' Inv.(Out) = 1382.55'
S = 0.005 ft/ft

3-17 3-18
17' - 15" Storm Sewer Pipe Req'd (Cover = 3.0')
Inv.(In) = 1389.00' Inv.(Out) = 1388.25'
S = 0.04 ft/ft

UNDERDRAIN SUMMARY

Street	Begin Station	End Station	Travelway	UD-4 Feet	Outlet Pipe	Remarks
Reservior St.	34+00	36+25	RT	205	12	Tie UD-4 into proposed str.3-15
Carlton St.	12+00	14+00	RT	205	12	Tie UD-4 into proposed str.3-13
Carlton St.	12+75	14+00	LT	105	12	Tie UD-4 into proposed str.3-11
Reservior St.	31+00	33+50	RT	255	12	Tie UD-4 into proposed str.3-4
Reservoir St.	31+50	33+50	LT	158	12	Tie UD-4 into proposed str.3-2
Carlton St.	14+75	15+00	LT	88	12	Tie UD-4 into proposed str.3-2
Parking Lot	61+50	61+95	RT	46	6	Tie UD-4 into proposed str.3-17

GENERAL NOTES

1. The horizontal location of all drainage structures shown on these plans is approximate only, with the exception of structures showing specific stations, special design bridges and storm sewer systems.

2. All existing drainage facilities labeled "To Be Abandoned" shall be left in place, backfilled and plugged in accordance with the VDOT Road and Bridge Standard PP-1. Basis of Payment will be C.Y. of Flowable Backfill.

3. Existing drainage facilities being utilized as a part of the drainage system, and designated on the plans "To Be Cleaned Out" shall be cleaned as directed by the Engineer. The cost incidental to this shall be included in the contract price for other items.

4. Proposed drop inlets with a height (H) less than the standard minimum shown in the VDOT Road and Bridge Standards shall be considered and paid for as Standard Drop Inlets for the type specified. Pipes with less than standard minimum finished height of cover shall be noted as such in the drainage description for the pipe. Specific pipe bedding and cover requirements are provided in the applicable PB-1 and PC-1 standard drawings of the VDOT Road and Bridge Standards.

5. When CG-6 or CG-7 is specified on a radius (such as at a street intersection), the Engineer may approve a decrease in the cross slope of the gutter to facilitate proper drainage.

6. Installation of concrete storm pipe shall comply with VDOT Standard Drawing PB-1.

7. The horizontal location and invert elevations shown for proposed culverts and storm sewer outfall pipes are based on existing survey data and required design criteria. If during construction, it is found that the horizontal location or invert elevations shown on the plans differ significantly from the horizontal location or elevations of the stream or swale in which the culvert or storm sewer outfall pipe is to be placed, the Engineer shall confer with, and get approval from, the applicable District Drainage Engineer before installing the culvert or storm sewer outfall pipe.

8. The "H" dimensions shown on plans for drop inlets and junction boxes and the "L.F." dimensions shown for manholes are for estimating purposes and are based on the proposed invert elevations shown for the structure and the anticipated top (rim) elevation based on existing or proposed finished grade. The actual "H" or "L.F." dimensions are to be determined by the contractor from field conditions.

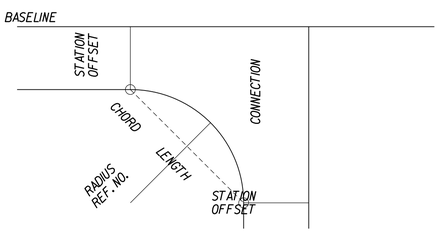
9. Pipes shall conform to any of the allowable types shown on sheet number (specify sheet number), within the applicable height of cover limitations. For strength, sheet thickness, or class designation; available sizes; height of cover limitations; and other restrictions for a particular pipe type or height of cover, see the VDOT Road and Bridge Standard PC-1. Structural plate pipe may be substituted for corrugated pipe of the same size, provided the substitution complies with the applicable sections of the VDOT Road and Bridge Standards PC-1.

DRAINGAGE DESCRIPTIONS		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 2C

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600 _ _ _ .
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc. _ _ _ _ _ .

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101; R201, C501	2DI

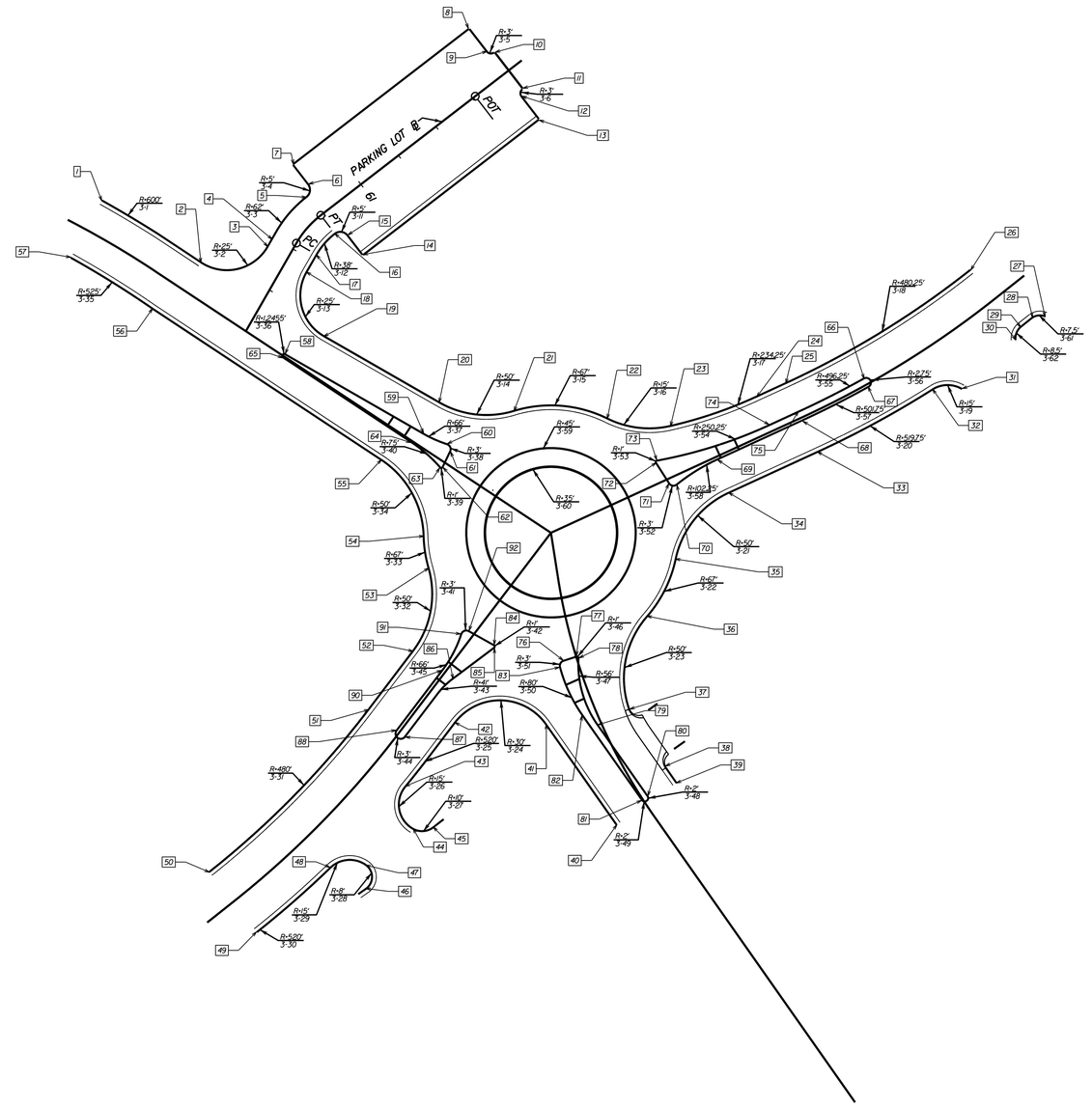
RADIAL OFFSETS DATA



LOCATION (REF. NO.)	BASELINE		CONNECTION		RADIUS LENGTH	CHORD LENGTH	CURVE LENGTH
SHEET - ITEM	STATION	OFFSET	STATION	OFFSET	FEET	FEET	FEET
3-1	11+45.00	17.30	11+77.6	17.10	600	33.80	33.8
3-2	12+5.2	17.00	18+44.4	12.00	25	36.40	30.8
3-3	18+53.6	12.00	18+73.2	12.00	62	24.10	24.3
3-4	18+73.2	12.00	18+78.2	17.00	8	7.10	7.8
3-5	19+71.2	12.00	19+68.2	15.00	3	4.20	4.7
3-6	19+71.2	12.00	19+68.2	15.00	3	4.20	4.7
3-7	19+46.0	30.00	19+44.4	30.80	2	1.76	1.8
3-8	19+44.4	30.80	19+44.06	32.63	2	1.88	1.96
3-9	19+41.76	32.04	19+41.13	30.97	3	1.24	1.25
3-10	19+41.13	30.97	19+38.92	30.00	3	2.41	2.48
3-11	18+78.19	17.00	18+73.18	12.00	5	7.07	7.86
3-12	18+73.18	12.00	18+53.61	12.00	2	14.75	14.85
3-13	18+42.98	12.00	12+80.71	20.26	25	35.35	39.27
3-14	13+50.92	24.65	13+86.33	42.69	50	39.74	40.87
3-15	13+86.33	42.69	14+29.63	66.48	67	49.40	50.59
3-16	32+82.52	42.15	33+11.20	24.66	16	33.59	34.26
3-17	33+11.20	24.66	33+58.91	19.75	234.25	47.97	48.05
3-18	33+75.92	19.75	32+96.34	19.75	480.25	114.46	114.73
3-19	31+55.3	28.16	32.42.62	19.75	15	15.72	16.55
3-20	32.42.62	19.75	32+75.92	19.75	519.75	69.28	69.33
3-21	33+24.38	19.75	34+84.23	39.94	50	44.94	46.6
3-22	34+84.23	39.94	34+57.97	61.08	67	33.72	34.09
3-23	14+93.7	41.73	15+41.66	16.22	50	49.95	52.59
3-24	15+31.81	26.78	34+80.03	20.00	30	48.45	56.4
3-25	35+01.97	20.00	35+22.06	20.00	520	20.89	20.89
3-26	35+22.06	20.00	35+35.83	37.63	15	22.86	26
3-27	35+35.83	37.63	35+28.58	45.61	10	11.20	11.88
3-28	35+72.88	41.56	35+64.23	32.27	8	13.13	15.41
3-29	35+64.23	32.27	35+76.57	20.00	15	19.03	20.61
3-30	35+76.57	20.00	36+27.62	20.00	520	51.52	51.55
3-31	36+27.62	20.00	35+01.97	20.00	480	120.30	120.62
3-32	34+63.31	20.00	34+23.25	40.09	50	44.82	46.47
3-33	14+05.55	50.95	14+16.96	38.37	67	16.98	17.03
3-34	14+16.96	38.37	14+40.99	17.00	50	46.23	48.05
3-35	11+97.25	17.00	11+45.00	16.66	525	50.79	5081
3-36	12.68.87	1.49	12+69.03	1.00	1.25	2.49	3.91
3-37	13+52.91	6.74	13+66.35	8.99	66	13.63	13.65
3-38	13+66.35	8.99	13+70.12	6.52	3	4.51	5.1
3-39	13+69.06	2.62	13+70.07	3.70	1	1.71	2.06
3-40	13+70.07	3.70	13+50.13	1.00	75	20.11	20.17
3-41	34+36.93	3.15	34+40.87	5.58	3	4.63	5.29
3-42	34.34.81	11.94	34+36.07	13.04	1	1.68	1.99
3-43	34+62.35	5.78	34+73.61	4.00	41	11.37	11.41
3-44	34+76.97	2.00	34+76.97	4.00	3	6.00	9.42
3-45	34+62.35	2.00	34+40.87	5.58	66	21.73	21.82
3-46	15+04.55	0.24	15+05.9	1.19	1	1.65	1.94
3-47	15+05.9	1.19	15+42.4	1.87	56	36.65	37.33
3-48	15+88.16	3.30	15+90.24	1.37	2	2.82	3.14
3-49	15+90.24	1.37	15+88.3	0.79	2	2.90	3.14
3-50	15+34.63	7.67	15+07.48	10.02	80	28.05	28.19
3-51	15+07.48	10.02	15+04.68	7.07	3	4.12	5.54
3-52	33+02.28	2.36	32+98.58	4.86	3	4.47	5.04
3-53	33+04.06	10.38	33+02.82	11.48	1	1.66	1.96
3-54	33+02.82	11.48	32+41.09	3.75	250.25	62.21	62.38
3-55	32+24.08	3.75	31+51.59	3.75	496.25	71.92	71.99

LOCATION	BASELINE	STATION	OFFSET	ELEVATION
1	Carlton	11+45.00	17.75	1396.94
2	Carlton	12+05.21	17.50	1395.60
3	PKGLOT	60+44.40	12.50	1395.35
4	PKGLOT	60+53.61	12.50	1395.72
5	PKGLOT	60+73.20	12.50	1396.45
6	PKGLOT	60+77.68	17.00	1396.76
7	PKGLOT	60+78.18	30.50	1397.13
8	PKGLOT	61+95.18	30.50	1397.13
9	PKGLOT	61+95.68	15.00	1396.68
10	PKGLOT	61+98.68	12.00	1396.26
11	PKGLOT	61+98.68	12.00	1395.54
12	PKGLOT	61+95.68	15.00	1395.78
13	PKGLOT	61+95.18	30.50	1395.13
14	PKGLOT	60+78.18	30.50	1395.05
15	PKGLOT	60+77.68	17.00	1395.87
16	PKGLOT	60+73.15	12.50	1395.97
17	PKGLOT	60+53.61	12.50	1395.24
18	PKGLOT	60+42.99	12.50	1394.81
19	PKGLOT	12+80.68	20.76	1392.68
20	Carlton	172+55.53	25.15	1391.03
21	RAB	11+95.73	32.50	1392.10
22	RAB	11+69.30	32.50	1392.10
23	Reservoir	32+88.70	25.15	1391.03
24	Reservoir	32+41.09	20.25	1391.39
25	Reservoir	32+24.08	20.25	1391.87
26	Reservoir	31+04.63	20.25	1397.59
27	Reservoir	30+89.09	24.00	Match exist.
28	Reservoir	30+94.58	20.34	Match exist.
29	Reservoir	31+02.60	20.35	Match exist.
30	Reservoir	31+08.56	24.32	Match exist.
31	Reservoir	31+45.13	28.38	1395.58
32	Reservoir	31+57.38	20.25	1395.03
33	Reservoir	32+24.08	20.25	1391.87
34	Reservoir	32+75.62	20.25	1391.01
35	RAB	11+23.13	32.50	1392.10
36	RAB	11+05.32	32.50	1392.10
37	Carlton	15+41.70	16.72	1390.93
38	Carlton	15+80.37	19.45	1390.69
39	Carlton	15+90.73	19.89	1390.65
40	Carlton	15+91.75	19.20	1390.28
41	Carlton	172+55.53	27.27	1390.44
42	Reservoir	34+79.89	20.50	1390.46
43	Reservoir	35+22.12	20.50	1389.40
44	Reservoir	35+35.83	37.63	1388.80
45	Reservoir	35+28.58	45.61	1389.00
46	Reservoir	35+72.88	41.56	1387.65
47	Reservoir	35+64.23	32.27	1387.65
48	Reservoir	35+78.00	20.50	1387.24
49	Reservoir	36+27.62	20.50	1384.59
50	Reservoir	36+27.62	20.50	1384.59
51	Reservoir	35+01.97	20.50	1389.98
52	Reservoir	34+63.31	20.50	1390.81
53	RAB	10+30.24	32.50	1392.10
54	RAB	10+21.34	32.50	1392.10
55	Carlton	13+42.05	17.00	1390.68
56	Carlton	11+97.25	17.00	1395.36
57	Carlton	11+45.	16.66	1396.72
58	Carlton	12+68.87	1.49	1393.14
59	Carlton	172+55.53	6.24	1391.52
60	Carlton	13+66.49	8.51	1391.91
61	Carlton	13+69.63	6.45	1392.22
62	Carlton	13+70.90	2.69	1392.24

RAB - ROUNDABOUT CONSTR. BASELINE
Carlton - S.CARLTON ST.CONSTR. BASELINE
Reservoir - RESERVOIR ST.CONSTR. BASELINE
PKGLOT - PARKING LOT CONSTR. BASELINE



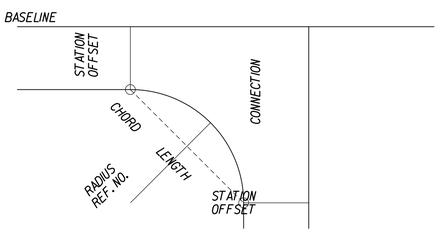
ROUNDABOUT
TOP OF CURB ELEVATIONS
(NOT TO SCALE)

RADIAL OFFSET DATA		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 2DI

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600 _____.
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc. _____.

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101; R201, C501	2D2

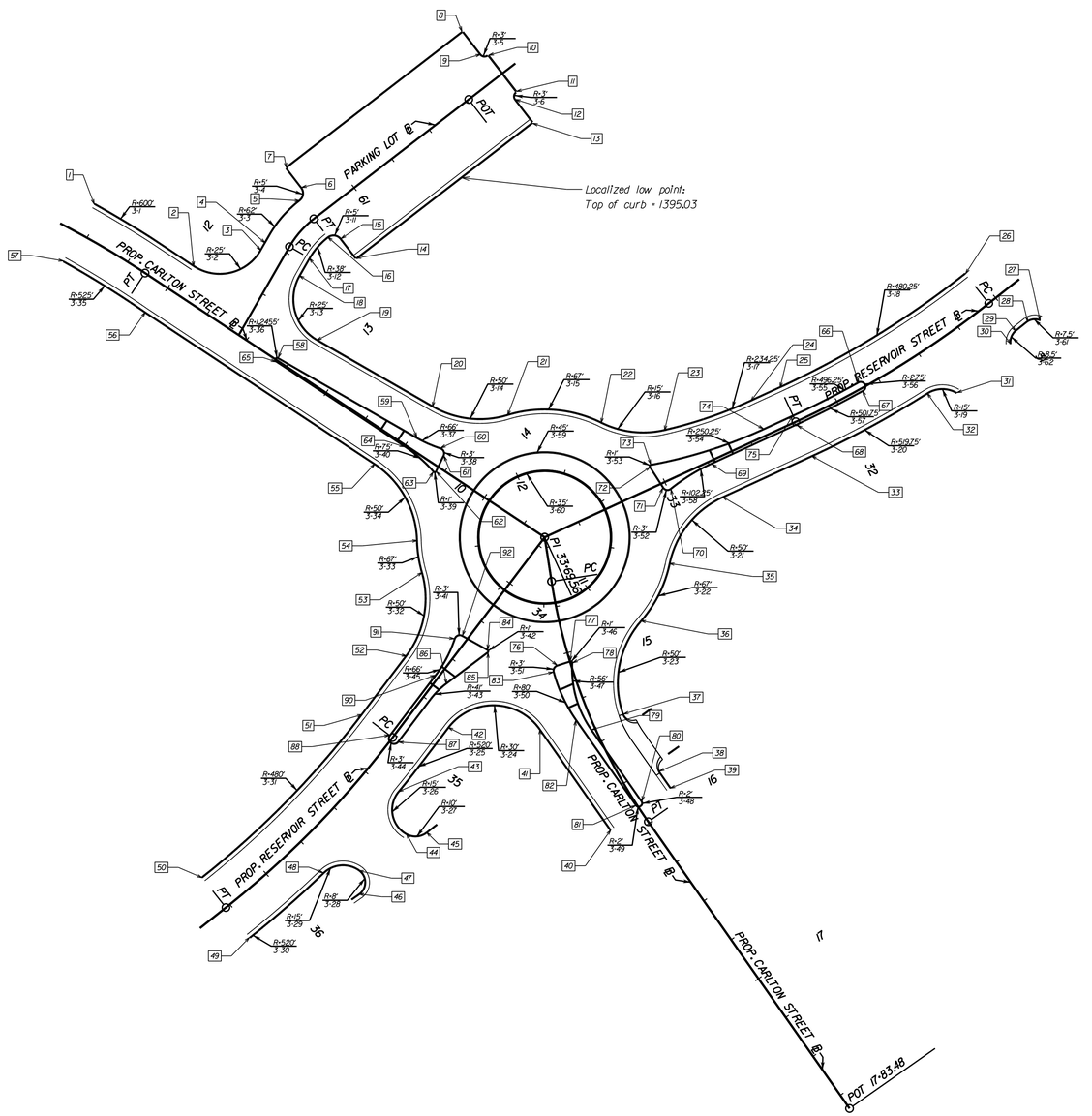
RADIAL OFFSETS DATA



LOCATION (REF. NO.)	BASELINE		CONNECTION		RADIUS LENGTH	CHORD LENGTH	CURVE LENGTH
SHEET - ITEM	STATION	OFFSET	STATION	OFFSET	FEET	FEET	FEET
3-56	31+51.59	3.75	31+51.59	1.75	2.75	5.50	8.64
3-57	31+51.59	1.75	32+24.08	1.75	501.75	72.72	72.78
3-58	32+73.56	1.75	32+98.58	1.86	102.25	25.21	25.28
3-59	33+66.37	44.88	33+93.51	38.10	45	90.00	282.74
3-60	33+49.91	28.25	33+89.68	27.92	35	66.91	219.91
3-61	30+88.55	23.75	30+94.58	38.10	45	90.00	282.74
3-62	31+02.60	28.25	31+08.56	27.92	35	66.91	219.91

LOCATION	BASELINE	STATION	OFFSET	ELEVATION
63	Carlton	13+70.06	3.70	1391.66
64	Carlton	13+50.13	1.00	1391.13
65	Carlton	12+69.03	0.50	1393.64
66	Reservoir	31+85.19	3.25	1393.91
67	Reservoir	31+85.28	1.25	1393.64
68	Reservoir	32+24.08	1.25	1391.87
69	Reservoir	32+73.56	1.25	1391.03
70	Reservoir	32+98.7	4.37	1391.70
71	Reservoir	33+01.79	2.29	1391.98
72	Reservoir	33+03.56	10.45	1391.94
73	Reservoir	33+02.93	11.00	1391.57
74	Reservoir	32+41.09	3.25	1391.67
75	Reservoir	32+24.08	3.25	1392.15
76	Carlton	15+05.05	7.06	1391.85
77	Carlton	15+04.55	0.24	1391.37
78	Carlton	15+05.74	0.72	1391.87
79	Carlton	15+42.49	2.36	1391.55
80	Carlton	15+88.18	2.80	1391.13
81	Carlton	15+88.29	0.29	1391.18
82	Carlton	15+34.53	7.18	1391.32
83	Carlton	15+07.5	9.53	1391.79
84	Reservoir	34+35.31	12.00	1392.19
85	Reservoir	34+35.94	12.56	1392.11
86	Reservoir	34+62.21	5.10	1391.24
87	Reservoir	34+35.31	12.01	1392.19
88	Reservoir	35+01.97	1.50	1390.47
89	Reservoir	34+73.61	3.50	1391.05
90	Reservoir	34+62.30	1.50	1391.32
91	Reservoir	34+40.7	5.11	1391.93
92	Reservoir	34+37.42	3.09	1392.23

RAB - ROUNDABOUT CONSTR. BASELINE
Carlton - S.CARLTON ST.CONSTR. BASELINE
Reservoir - RESERVOIR ST.CONSTR. BASELINE
PKGLOT - PARKING LOT CONSTR. BASELINE

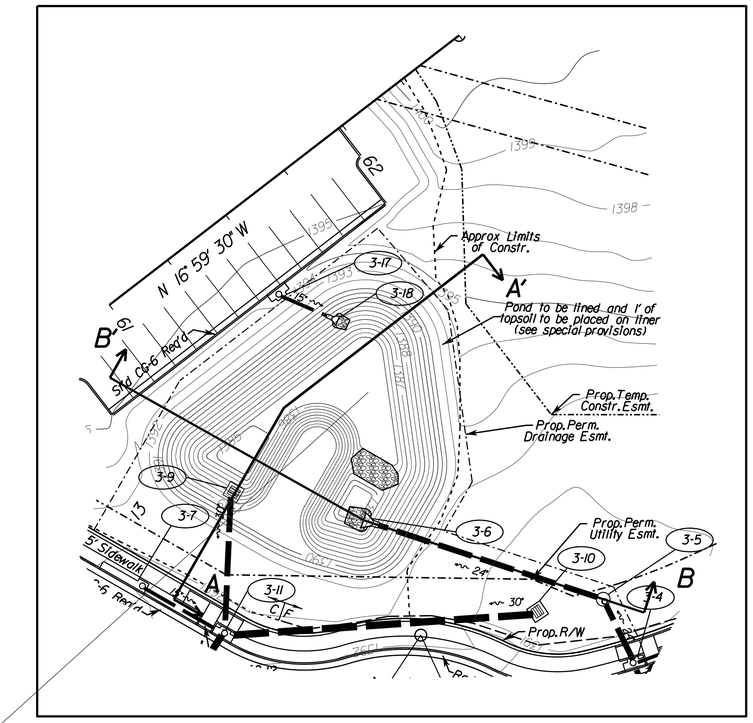


ROUNDABOUT
TOP OF CURB ELEVATIONS
(NOT TO SCALE)

RADIAL OFFSET DATA (CON'T)		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 2D2

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

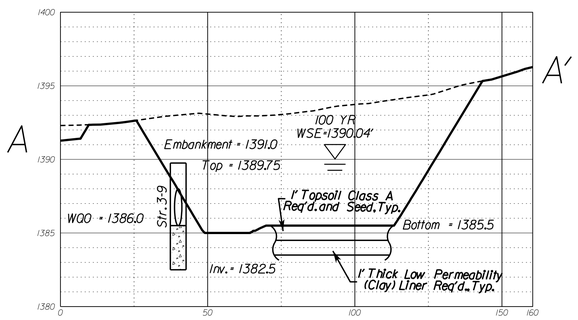
SWM BASIN DETAILS AND NOTES



NOTES:

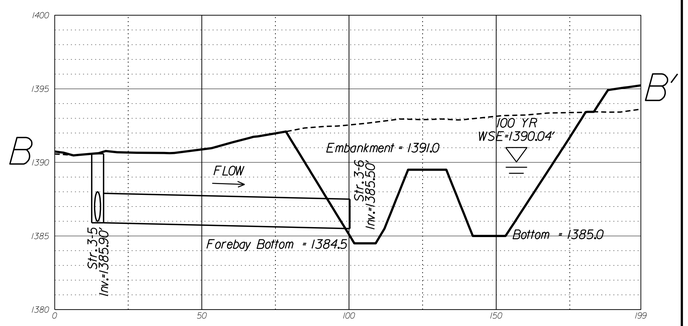
1. For additional details, see Virginia Stormwater Management Handbook, Std 3.07
2. See Drainage Description Sheet 2C for additional structure details.
3. Basin to be used as temporary sediment basin during construction. See sheet 2F for SWM-DR details.
4. Final basin grading to be completed following site stabilization. Sediment Forebay to remain in place.
5. SWM BASIN OUTLET PIPE - The pipe culvert under or through the dam for detention basins (no permanent pool) shall be reinforced concrete pipe with rubber gaskets in accordance with Section 232 and 212 of the applicable VDOT Road and Bridge Specifications. A concrete cradle shall extend the full length of the pipe culvert in accordance with the Standard Drawings. The connection between the pipe culvert and the SWM-1 Drainage Structure (or other control structure) shall be made watertight as approved by the Engineer and the cost shall be included in the price bid for pipe.
6. All SWM Basins designated for use as temporary sediment basins shall be constructed during the initial phase of earth moving activities or as specified by the plans or directed by the Engineer. During project construction, the SWM-1 Drainage Structure (or other control structure) shall be modified in accordance with the Standard Drawings or plan details in order to provide a temporary sediment basin with both a "wet" storage volume (permanent pool) and a "dry" storage volume. Sediment accumulated in the basin shall be removed when the volume of the "wet" storage (permanent pool) has been reduced by 50%. Sediment shall be disposed of in accordance with Section 106.04 of the applicable VDOT Road and Bridge Specifications. When project construction is complete to a stage where no additional sediment from the project is expected to enter the basin, as determined by the Engineer, the basin shall be cleaned out and restored to the original design elevations, the area stabilized and all temporary modifications to the SWM-1 Drainage Structure (or other control structure) removed.
7. SWM Basin shall be lined to meet permeability requirements outlined in special provisions. Liner shall be covered with 12" of topsoil.

SECTION A-A'



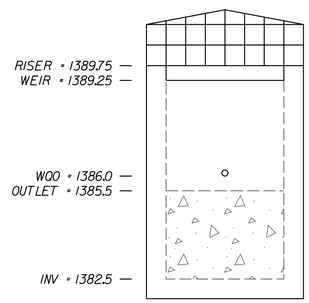
V = 1" : 5' H = 1" : 25'

SECTION B-B'



V = 1" : 5' H = 1" : 25'

STRUCTURE 3-9 DETAIL



NOT TO SCALE

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
DRAINAGE ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101, R201, C501	2E

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

SWM BASIN DETAILS AND NOTES		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 2E

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

SWM BASIN DETAILS AND NOTES

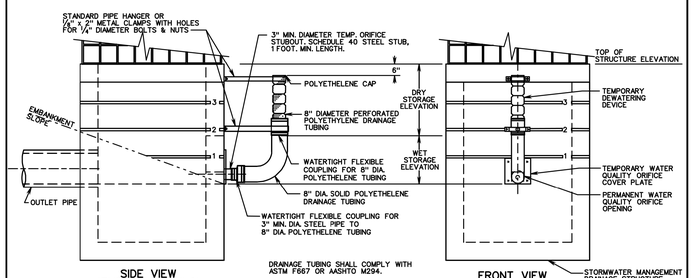
COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
DRAINAGE ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101, R201, C501.	2F

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

SWM-DR

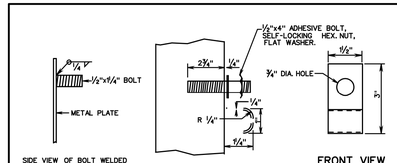


NOTES:

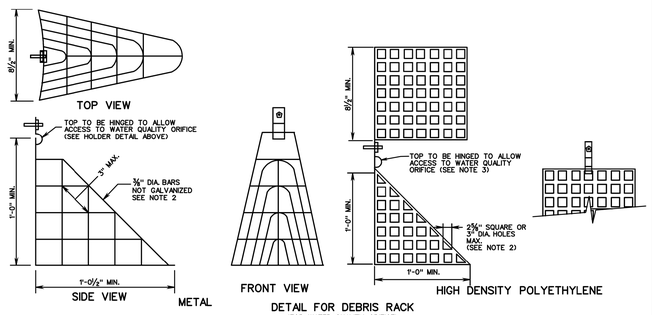
1. THESE DETAILS ARE TO BE USED TO MODIFY THE PERMANENT STORMWATER MANAGEMENT DRAINAGE STRUCTURE WHERE THE STORMWATER MANAGEMENT BASIN IS TO BE USED FOR A TEMPORARY SEDIMENT BASIN DURING PROJECT CONSTRUCTION.
2. GRADE STORMWATER MANAGEMENT BASIN AS SHOWN IN PLANS.
3. ALL OPENINGS (IF ANY) IN SIDE OF STRUCTURE (OTHER THAN PERMANENT WATER QUALITY ORIFICE) ARE TO BE COVERED WITH SOLID METAL PLATES WHILE THE BASIN IS BEING USED FOR SEDIMENT CONTROL.
4. DEWATERING DEVICE AND COMPONENTS AND TEMPORARY METAL PLATES (IF ANY), AS SHOWN IN THE DETAIL ARE TO BE REMOVED AND PERMANENT STEEL PLATE WITH WATER QUALITY ORIFICE IS TO BE INSTALLED WHEN BASIN IS NO LONGER NEEDED FOR SEDIMENT CONTROL.
5. SIMILAR DEVICE MAY ALSO BE USED ON OTHER STORMWATER MANAGEMENT DRAINAGE STRUCTURES.
6. COST OF TEMPORARY DEWATERING DEVICE AND TEMPORARY METAL PLATES (IF ANY) SHALL BE INCLUDED IN THE BID PRICE FOR STORMWATER MANAGEMENT DRAINAGE STRUCTURE.
7. THE TEMPORARY 8" DIA. POLYETHELENE DRAINAGE TUBING IS TO BE SOLID FOR THE LENGTH BELOW WET STORAGE ELEVATION AND IS TO BE PERFORATED ABOVE THE WET STORAGE ELEVATION. THE COUPLING IS TO BE WATERTIGHT.

VDOT ROAD AND BRIDGE STANDARDS	STORMWATER MANAGEMENT (SWM) DETAILS	SPECIFICATION REFERENCE
SHEET 1 OF 5 / REVISION DATE	VIRGINIA DEPARTMENT OF TRANSPORTATION	302
114.04		

SWM-DR

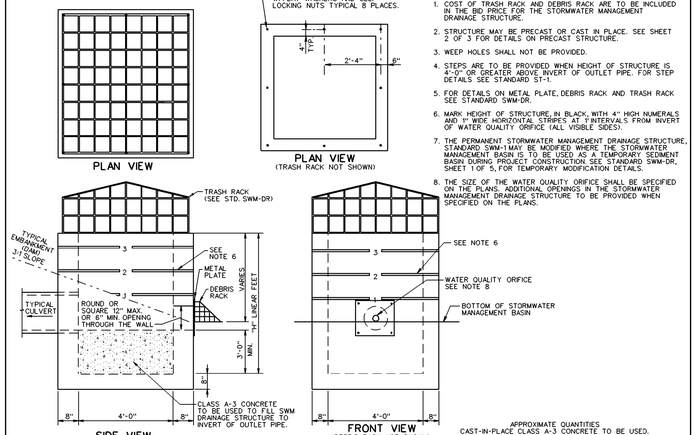


1. COST OF DEBRIS RACK, METAL PLATE, AND DEBRIS RACK HOLDER TO BE INCLUDED IN THE BID PRICE FOR THE SWM DRAINAGE STRUCTURE.
2. DEBRIS RACK MAY BE FABRICATED FROM WELDED 3/4" DIAMETER BARS OR 1/2" THICK HIGH DENSITY POLYETHYLENE. METAL COMPONENTS OF DEBRIS RACK MUST NOT BE GALVANIZED.
3. DEBRIS RACK TO BE HINGED AS SHOWN OR CONTRACTOR MAY SUBSTITUTE A COMPARABLE DESIGN AS APPROVED BY THE ENGINEER.
4. THE LOCATION OF THE DEBRIS RACK HOLDER MAY BE ADJUSTED FOR VARIABLE CONDITIONS, WHEN HOLDER BOLT IS LOCATED ON THE METAL PLATE, THE 1/2" DIA. BOLT LENGTH IS TO BE REDUCED 1/2" LG. AND WELDED TO THE PLATE. DEBRIS RACK HOLDER AND ALL HARDWARE IS TO BE GALVANIZED.



SPECIFICATION REFERENCE	STORMWATER MANAGEMENT (SWM) DETAILS DEBRIS RACK, METAL PLATE, WATER QUALITY ORIFICE, CONCRETE CRADLE (FOR SWM DRAINAGE STRUCTURES, SWM RISER PIPES AND SWM DAMS) VIRGINIA DEPARTMENT OF TRANSPORTATION	VDOT ROAD AND BRIDGE STANDARDS
302		REVISION DATE / SHEET 2 OF 5
		114.05

SWM-1



NOTES:

1. COST OF TRASH RACK AND DEBRIS RACK ARE TO BE INCLUDED IN THE BID PRICE FOR THE STORMWATER MANAGEMENT DRAINAGE STRUCTURE.
2. STRUCTURE MAY BE PRECAST OR CAST IN PLACE. SEE SHEET 2 OF 3 FOR DETAILS ON PRECAST STRUCTURE.
3. WEEP HOLES SHALL NOT BE PROVIDED.
4. STEPS ARE TO BE PROVIDED WHEN HEIGHT OF STRUCTURE IS 4'-0" OR GREATER ABOVE INVERT OF OUTLET PIPE. FOR STEP DETAILS SEE STANDARD ST-1
5. FOR DETAILS ON METAL PLATE, DEBRIS RACK AND TRASH RACK SEE STANDARD SWM-DR.
6. MARK HEIGHT OF STRUCTURE, IN BLACK, WITH 4" HIGH NUMERALS AND 1" WIDE HORIZONTAL STRIPES AT 1' INTERVALS FROM INVERT OF WATER QUALITY ORIFICE (ALL VISIBLE SIDES).
7. THE PERMANENT STORMWATER MANAGEMENT DRAINAGE STRUCTURE, STANDARD SWM-1 MAY BE MODIFIED WHERE THE STORMWATER MANAGEMENT BASIN IS TO BE USED AS A TEMPORARY SEDIMENT BASIN DURING PROJECT CONSTRUCTION. SEE STANDARD SWM-DR, SHEET 1 OF 5, FOR TEMPORARY MODIFICATION DETAILS.
8. THE SIZE OF THE WATER QUALITY ORIFICE SHALL BE SPECIFIED ON THE PLANS. ADDITIONAL OPENINGS IN THE STORMWATER MANAGEMENT DRAINAGE STRUCTURE TO BE PROVIDED WHEN SPECIFIED ON THE PLANS.

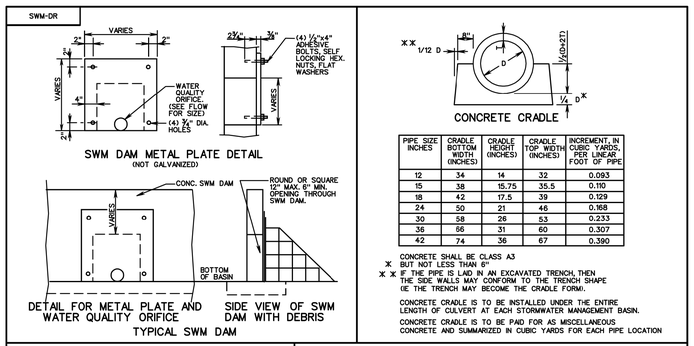
APPROXIMATE QUANTITIES
CAST-IN-PLACE CLASS A-3 CONCRETE TO BE USED.
MAXIMUM DEPTH (H) TO BE 12'-8".

PIPE SIZE	12"	15"	18"	24"	30"	36"	42"
MINIMUM DEPTH H	5'-0"	5'-3 1/4"	5'-6 1/2"	6'-1"	6'-7 1/2"	7'-2"	7'-8 1/2"
CU. YDS. CONCRETE	2.665	2.773	2.878	3.078	3.624	3.437	3.598

INCREMENT PER FOOT OF ADDITIONAL DEPTH "H" = 0.461 CU. YDS.

SPECIFICATION REFERENCE	CAST IN PLACE STORMWATER MANAGEMENT DRAINAGE STRUCTURE VIRGINIA DEPARTMENT OF TRANSPORTATION	VDOT ROAD AND BRIDGE STANDARDS
302		REVISION DATE 08/10 / SHEET 1 OF 3
		114.01

SWM-DR

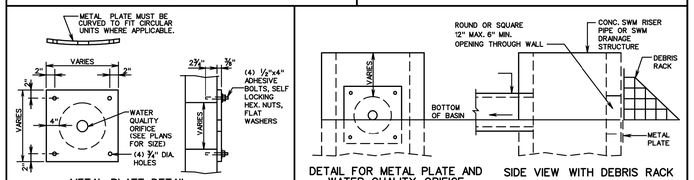


PIPE SIZE INCHES	CRADLE BOTTOM WIDTH (INCHES)	CRADLE HEIGHT (INCHES)	CRADLE TOP WIDTH (INCHES)	INCREMENT, IN CUBIC YARDS, PER LINEAR FOOT OF PIPE
12	34	14	32	0.093
15	38	15.75	35.5	0.110
18	42	17.5	39	0.129
24	50	21	46	0.168
30	58	26	53	0.233
36	66	31	60	0.307
42	74	36	67	0.390

CONCRETE SHALL BE CLASS A3
* BUT NOT LESS THAN 8"
** IF THE PIPE IS LAID IN AN EXCAVATED TRENCH, THEN THE SIDE WALLS MAY CONFORM TO THE TRENCH SHAPE OR THE TRENCH MAY BECOME THE CRADLE FORM.

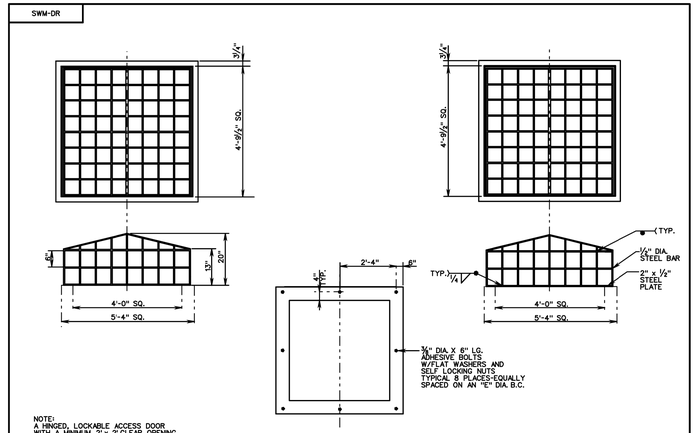
CONCRETE CRADLE IS TO BE INSTALLED UNDER THE ENTIRE LENGTH OF CULVERT AT EACH STORMWATER MANAGEMENT BASIN.

CONCRETE CRADLE IS TO BE PAID FOR AS MISCELLANEOUS CONCRETE AND SUMMARIZED IN CUBIC YARDS FOR EACH PIPE LOCATION



VDOT ROAD AND BRIDGE STANDARDS	STORMWATER MANAGEMENT (SWM) DETAILS DEBRIS RACK, METAL PLATE, WATER QUALITY ORIFICE, CONCRETE CRADLE (FOR SWM DRAINAGE STRUCTURES, SWM RISER PIPES AND SWM DAMS) VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE
SHEET 3 OF 5 / REVISION DATE		302
114.06		

SWM-DR



APPROX. WT. (LBS.)	APPROX. WT. (LBS.)
95	188

VDOT ROAD AND BRIDGE STANDARDS	STORMWATER MANAGEMENT DETAILS TRASH RACK FOR SWM DRAINAGE STRUCTURES VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE
SHEET 5 OF 5 / REVISION DATE		302
114.08		

SWM BASIN DETAILS AND NOT		
NOT TO SCALE	PROJECT U000-115-R32	SHEET NO. 2F

PROJECT MANAGER: Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY: NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY: Rick DeLong (540)248-0436
DESIGNED BY: McCormick Taylor, Inc.

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101, R201, C501	3

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Begin Project U000-115-R32, R201 Sta. 10+20.52

Begin Project U000-115-R32, P101, C501 Sta. 10+30.38

End Construction Parking Lot Sta. 61+98.68

Begin Construction Parking Lot Sta. 60+16.67

SEE INSERT A

FOR RESURFACING LIMITS SEE SHEET 5B

Match Line Sheet 5B Sta. 30+25

Begin Construction Reservoir St. Sta. 30+87.51

End Construction Reservoir St. Sta. 36+27.62

End Project U000-115-R32, PE101 R201, C501 Sta. 15+91.18

001 CITY OF HARRISONBURG SCHOOL BOARD
Parcel ID #027 R 15
D.B. 269 PG. 100
16.270 Ac.

002 CITY OF HARRISONBURG
Parcel ID #027 R 16
D.B. 254 PG. 590
2.405 Ac.

003 CLOVER LEAF SHOPPING CENTER CORPORATION
Parcel ID #027 O 1
D.B. 289 PG. 173
9.895 Ac.

004 McDONALD'S CORPORATION
Parcel ID #027 N 9
D.B. 1097 PG. 353
1.192 Ac.

005 FORWARD PROPERTIES LLC
Parcel ID #027 N 5
D.B. 3355 PG. 754
0.367 Ac.

DONNA R AREHART & KIMBERLY Y AREHART
Parcel ID #027 N 11
D.B. 3014 PG. 392
0.971 Ac.

CARLTON STREET B

RESERVOIR STREET B

TENNIS COURT B

PARKING LOT B

ROUNDABOUT B

KENMORE STREET

UTILITY OWNERS

WATER & SEWER
City of Harrisonburg
Attn: Marilyn Hartman (Field Contact)
1-540-434-9959
In the event of damage, call:
1-540-434-9959

City of Harrisonburg
Attn: Glen Baldwin (Field Contact)
1-540-434-5928
In the event of damage, call:
1-540-434-5928

ELECTRICITY
Harrisonburg Electric
Attn: Brian O'Dell (Field Contact)
1-540-434-5361
In the event of damage, call:
1-540-434-5363

COLUMBIA GAS
Attn: UTILIQUEST
1-703-754-2116
In the event of damage, call:
1-800-544-5606

TELEPHONE / CABLE
Verizon
Attn: Dean Rasmussen (Field Contact)
1-434-942-8192
In the event of damage, call:
1-877-562-2253

COMCAST
800-266-2278
Field Contact: USIC Locating Service
800-778-9140
Emergency/Damage: 800-441-6917 Ext. 1

INSERT A

POT 62+50.00

Denotes New Pavement
Denotes Proposed Sidewalk
Denotes Resurfacing
Denotes Demolition of Pavement

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

Carlton St. Profile	3A
Reservoir St. Profile	3A
Roundabout Profile	3B
Ex. Structure Descr.	2B
Drainage Descriptions	2C

PLAN SHEET

SCALE	PROJECT	SHEET NO.
0 25' 50'	U000-115-R32	3

1/9/2015
8:32:08 AM

dl03008_03Adgn
Plotted By: localuser

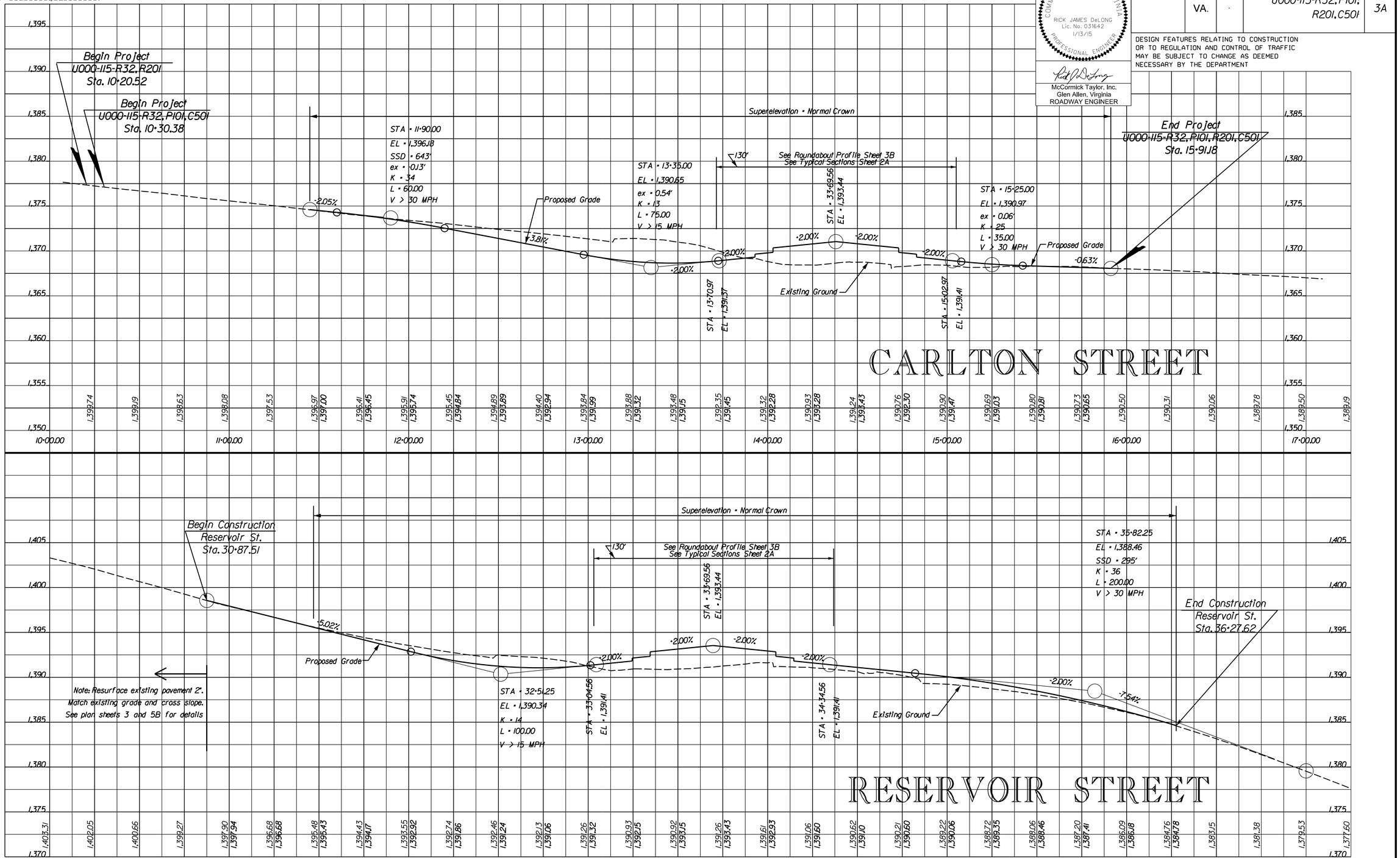
PROJECT MANAGER Kimberly_Cameron, P.E.(540)434-5928 (Harrisonburg)
SURVEYED BY NXL Inc.(804)644-4600_____.
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc._____.

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	·	U000-115-R32, P101, R201, C501	3A

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



PROFILE SHEET

HORZ. 1" = 25' VERT. 1" = 5'	PROJECT	SHEET NO.
	U000-115-R32	3A

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

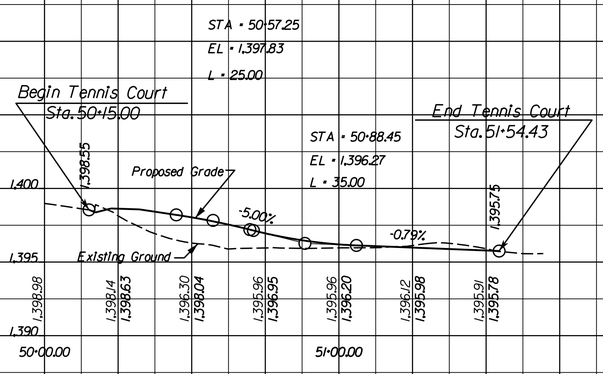
COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

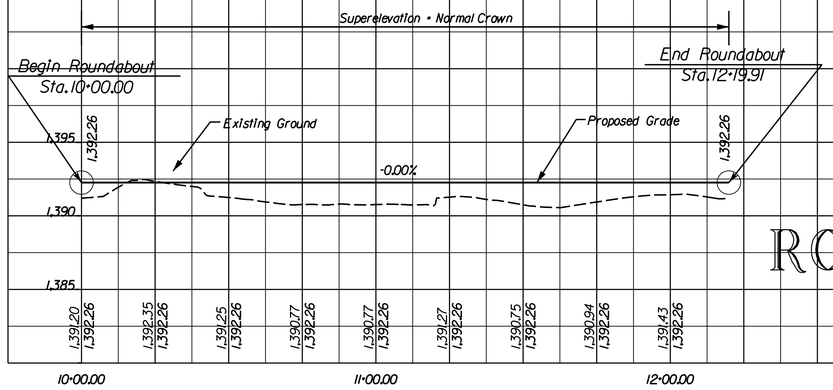
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	·	U000-115-R32, C501	3B

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

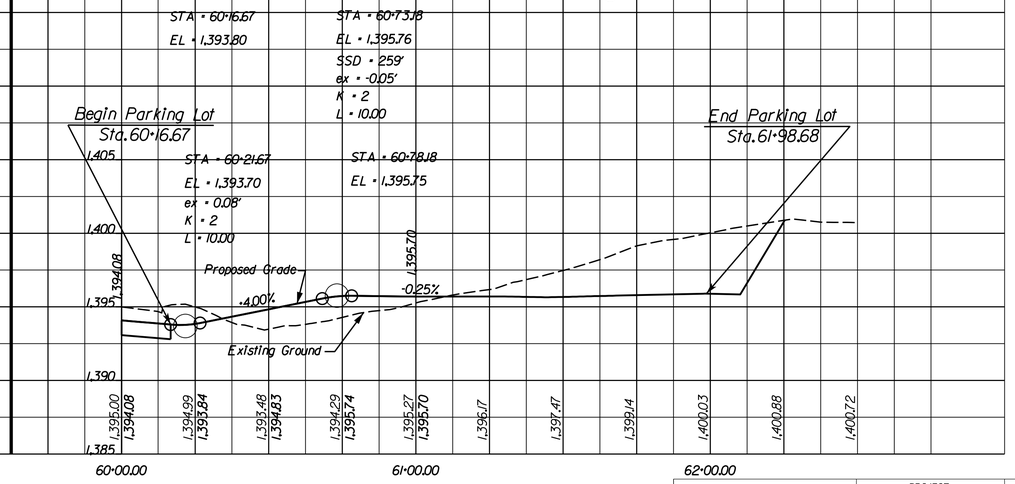
TENNIS COURT



ROUNDABOUT



PARKING LOT



PROFILE SHEET

HORZ. 1" = 25' VERT. 1" = 5'	PROJECT U000-115-R32	SHEET NO. 3B

EROSION & SEDIMENT CONTROL

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	·	U000-115-R32, P101; R201, C501	3C

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

See Sheet 2 for Erosion and Sediment Control Legend

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Plan Sheet	3
Profile Sheet	3A, 3B

EROSION AND SEDIMENT CONTROL PLANS

SCALE 0 25' 50'

PROJECT	SHEET NO.
U000-115-R32	3C

1/9/2015
8:32:11 AM

PROJECT MANAGER Kimberly Cameron, P.E. (Harrisonburg)
SURVEYED BY WXL, Inc.
DESIGN SUPERVISED BY Rick DeLong
DESIGNED BY McCormick Taylor, Inc.

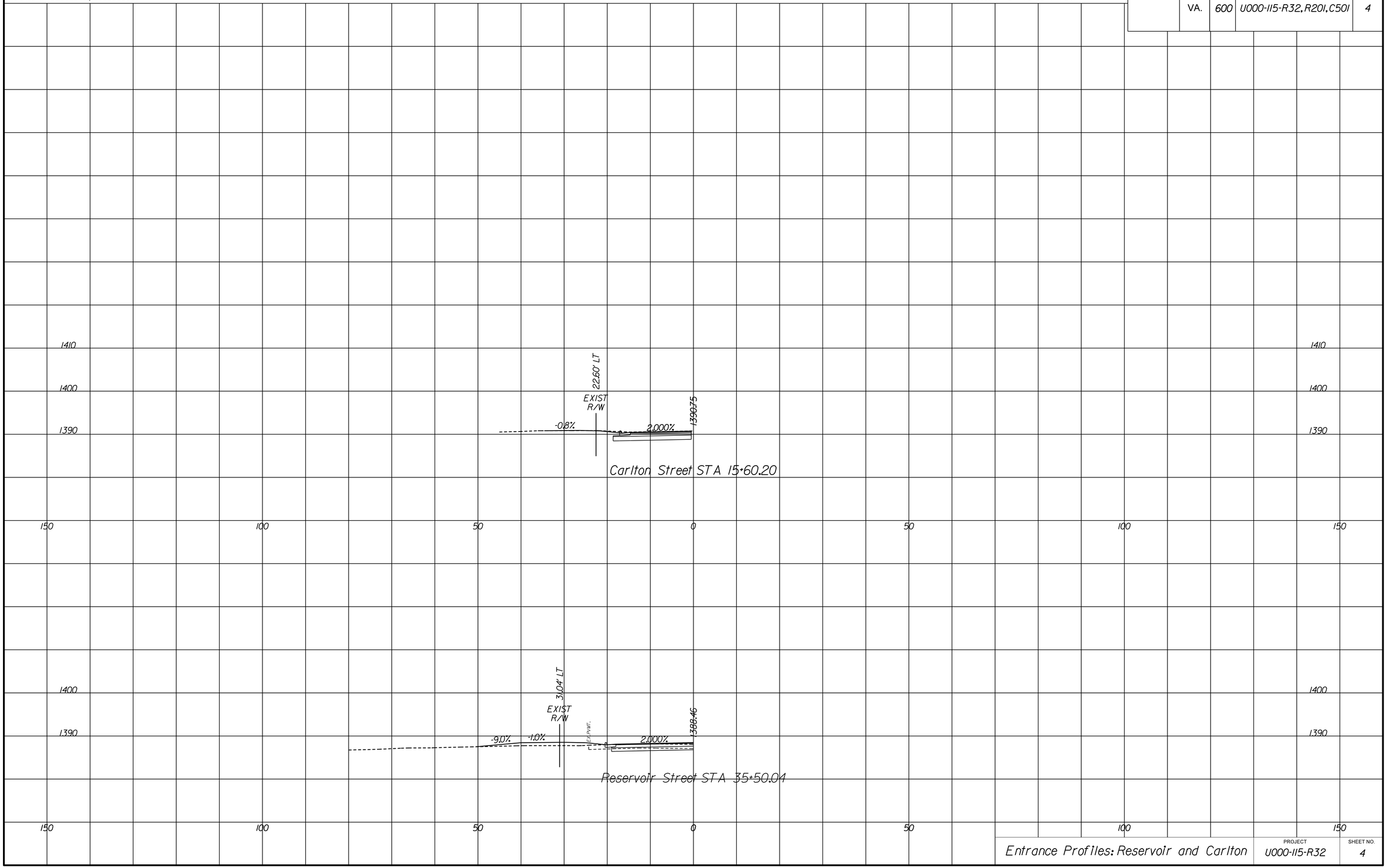
Entrance Profiles

CROSS SECTIONS

SCALE 1 IN. = 10 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	600	U000-115-R32, R201, C501	4



Entrance Profiles: Reservoir and Carlton	PROJECT U000-115-R32	SHEET NO. 4

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

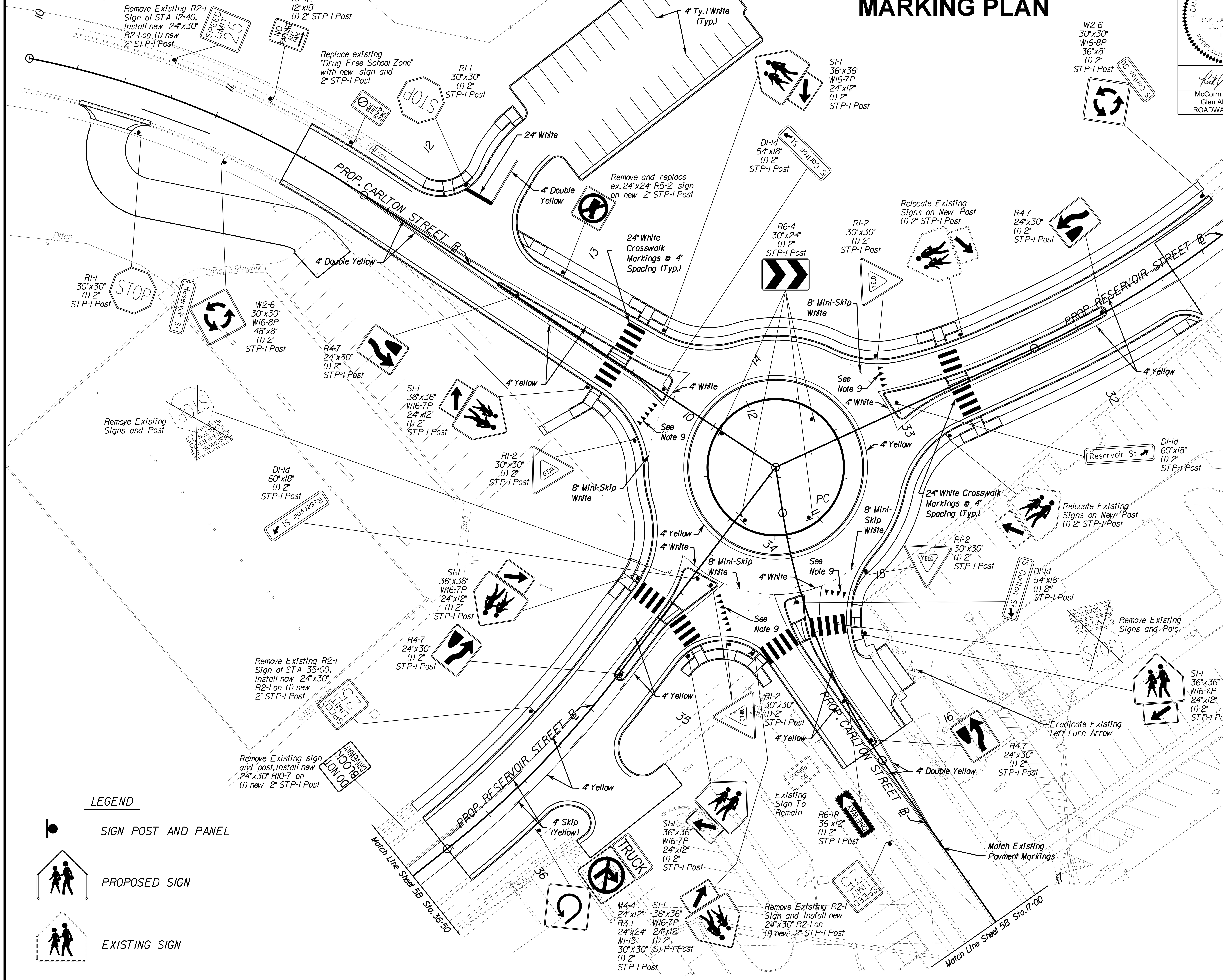
SIGNING AND PAVEMENT MARKING PLAN

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	·	U000-115-R32, P101; R201, C501	5(A)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT


Remove Existing R2-1 Sign at STA 12+40. Install new 24"x30" R2-1 on (1) new 2" STP-1 Post
R7-1R 12"x18" (1) 2" STP-1 Post
Replace existing "Drug Free School Zone" with new sign and 2" STP-1 Post
R1-1 30"x30" (1) 2" STP-1 Post
STOP
4" Ty. I White (Typ.)
24" White
4" Double Yellow
Remove and replace ex. 24"x24" R5-2 sign on new 2" STP-1 Post
S1-1 36"x36" W16-7P 24"x12" (1) 2" STP-1 Post
D1-1d 54"x18" (1) 2" STP-1 Post
S Carlton St
W2-6 30"x30" W16-8P 36"x8" (1) 2" STP-1 Post
Match Line Sheet 5B Sta. 30+25
4" Skip (Yellow)
PROP. CARLTON STREET
4" Double Yellow
Ditch
Conc. Sidewalk
24" White Crosswalk Markings @ 4' Spacing (Typ.)
R6-4 30"x24" (1) 2" STP-1 Post
R1-2 30"x30" (1) 2" STP-1 Post
Relocate Existing Signs on New Post (1) 2" STP-1 Post
R4-7 24"x30" (1) 2" STP-1 Post
PROP. RESERVOIR STREET
KENMORE STREET
R1-1 30"x30" (1) 2" STP-1 Post
Reservoir St
W2-6 30"x30" W16-8P 48"x8" (1) 2" STP-1 Post
R4-7 24"x30" (1) 2" STP-1 Post
8" Mini-Skip White
See Note 9
4" Yellow
4" White
4" Yellow
S1-1 36"x36" W16-7P 24"x12" (1) 2" STP-1 Post
Remove Existing Signs and Post
R1-2 30"x30" (1) 2" STP-1 Post
YIELD
8" Mini-Skip White
See Note 9
4" White
4" Yellow
PC
D1-1d 60"x18" (1) 2" STP-1 Post
Reservoir St
24" White Crosswalk Markings @ 4' Spacing (Typ.)
Relocate Existing Signs on New Post (1) 2" STP-1 Post
8" Mini-Skip White
4" Yellow
4" White
8" Mini-Skip White
4" White
See Note 9
See Note 9
R1-2 30"x30" (1) 2" STP-1 Post
D1-1d 54"x18" (1) 2" STP-1 Post
S Carlton St
Remove Existing Signs and Pole
S1-1 36"x36" W16-7P 24"x12" (1) 2" STP-1 Post
R4-7 24"x30" (1) 2" STP-1 Post
Remove Existing R2-1 Sign at STA 35+00. Install new 24"x30" R2-1 on (1) new 2" STP-1 Post
4" Yellow
R1-2 30"x30" (1) 2" STP-1 Post
4" Yellow
PROP. CARLTON STREET
Eradicate Existing Left Turn Arrow
R4-7 24"x30" (1) 2" STP-1 Post
4" Double Yellow
Remove Existing sign and post. Install new 24"x30" R10-7 on (1) new 2" STP-1 Post
DO NOT BLOCK DRIVEWAY
SPEED LIMIT 25
PROP. RESERVOIR STREET
4" Yellow
4" Skip (Yellow)
Existing Sign To Remain
R6-1R 36"x12" (1) 2" STP-1 Post
ONE WAY
S1-1 36"x36" W16-7P 24"x12" (1) 2" STP-1 Post
Match Existing Pavment Markings
Match Line Sheet 5B Sta. 36+50
Match Line Sheet 5B Sta. 17+00
TRUCK
M4-4 24"x12" R3-1 24"x24" W1-15 30"x30" (1) 2" STP-1 Post
S1-1 36"x36" W16-7P 24"x12" (1) 2" STP-1 Post
Remove Existing R2-1 Sign and install new 24"x30" R2-1 on (1) new 2" STP-1 Post

LEGEND

- SIGN POST AND PANEL
- PROPOSED SIGN
- EXISTING SIGN

GENERAL NOTES

1. Sign locations are to be staked by the Contractor and approved by the Engineer prior to installation.
2. Unless otherwise approved by the Engineer, existing traffic signs which are to be removed shall remain in place until the new sign post and critical sign message are in place.
3. Unless otherwise indicated on the plans, all breakaway sign posts shall be located within 25 feet of the sign's current field location or as directed by the Engineer.
4. Pavement markings shall be Type B, Class I marking unless otherwise noted.
5. Existing pavement markings that conflict with proposed pavement markings shall be eradicated as directed by the Engineer.
6. All new signs shall be erected on one 2", 12 gauge square tube sign post as per VDOT Standard STP-1, unless noted otherwise on the plans.
7. Completely eradicate and replace pavement markings on existing Carlton Street and Reservoir Street.
8. All mini-skip lines shall be 8" white, 2' lines with 4' spacing.
9. Yield Triangles are 24" wide by 36" long and are spaced at 3' on center.

SIGNING AND PAVEMENT MARKING PLAN	PROJECT	SHEET NO.
SCALE 0 25' 50'	U000-115-R32	5(A)

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600 _____.
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc. _____.

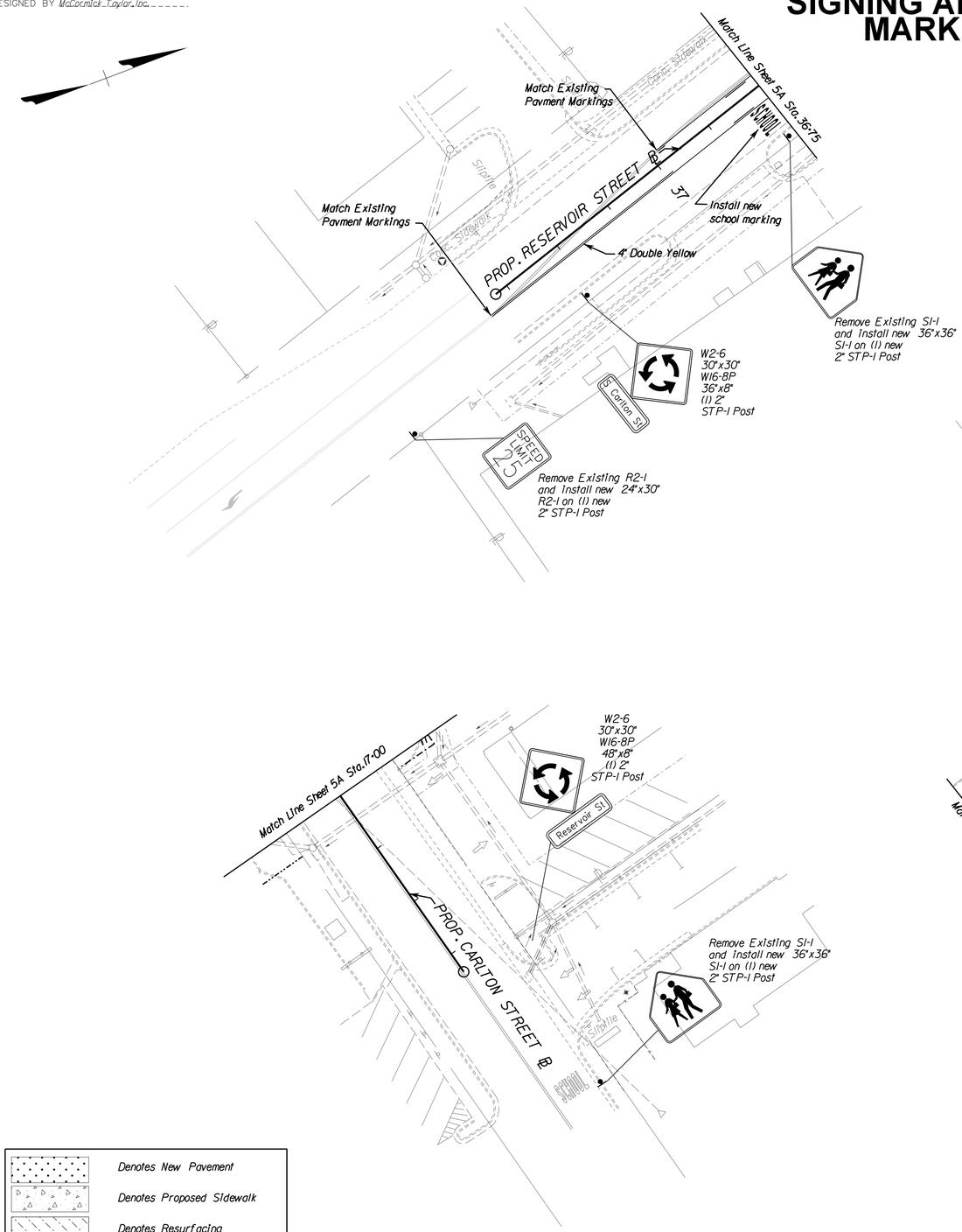
SIGNING AND PAVEMENT MARKING PLAN

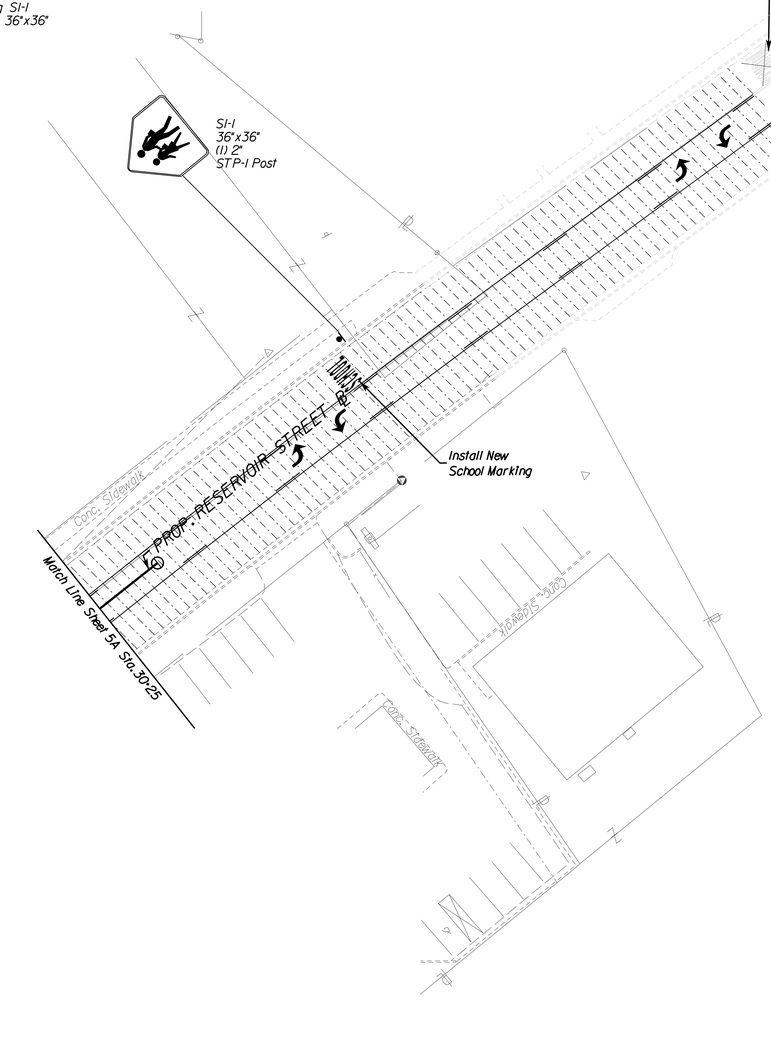
COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101; R201, C501	5(B)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT





Denotes New Pavement
Denotes Proposed Sidewalk
Denotes Resurfacing
Denotes Demolition of Pavement

LEGEND

SIGN POST AND PANEL

PROPOSED SIGN

EXISTING SIGN

SIGNING AND PAVEMENT MARKING PLANS (CON'T)

SCALE	PROJECT	SHEET NO.
0 25' 50'	U000-115-R32	5(B)

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

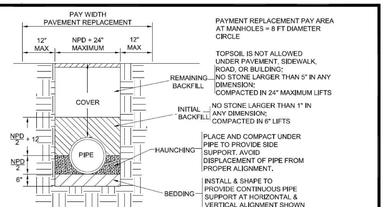
WATER AND SANITARY SEWER NOTES AND DETAILS

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101, R201; C501	6(1)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



LAYING CONDITION	BEDDING	HAUNCHING	INITIAL BACKFILL	REMAINING BACKFILL
1	CONCRETE ENCASEMENT (SEE CITY STANDARD DETAIL)			
2	CRA #68	CRA #68	CRA #68	#21A AGGREGATE
3	CRA #68	CRA #68	CRA #68	LM (85% NO LOAD - 95% LIVE LOAD)
4	CRA #68	CRA #68	SLM (95%)	LM (85% NO LOAD - 95% LIVE LOAD)
5	SH (95%)	(REFER TO LAYING CONDITION 6 OR 7)		
6	SLM (95%)	SLM (95%)	SLM (95%)	LM (85% NO LOAD - 95% LIVE LOAD)
7	SLM (95%)	SLM (95%)	SLM (95%)	#21A AGGREGATE

PIPE TRENCH APPLICATIONS:

DUCTILE IRON WATER PIPE	LAYING CONDITION 6
DUCTILE IRON WATER PIPE IN EXISTING PAVEMENT	LAYING CONDITION 7
DUCTILE IRON WATER PIPE WITH ROCK UNDERCUT	LAYING CONDITION 5
DUCTILE IRON SEWER PIPE	LAYING CONDITION 4
DUCTILE IRON SEWER PIPE IN EXISTING PAVEMENT	LAYING CONDITION 2
PVC SEWER PIPE	LAYING CONDITION 3
PVC SEWER PIPE IN EXISTING PAVEMENT	LAYING CONDITION 2

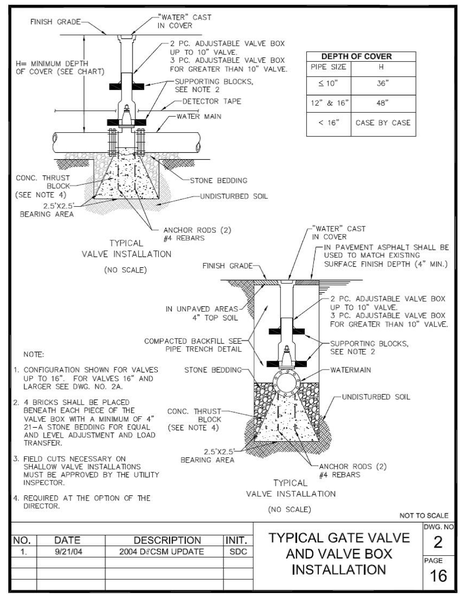
NOTES:
A) COMPACTION SHOWN IN PARENTHESES SHALL BE DETERMINED BY ASTM D 698
B) MINIMUM SPECIFICATION: TRENCHES UNDER PAVEMENTS, SIDEWALKS, ROADS, & BUILDINGS SHALL BE COMPACTED TO 95% DENSITY AS DETERMINED BY ASTM D 698, 8 INCH MAXIMUM LIFTS.
C) IF NOT SPECIFIED OTHERWISE, MINIMUM COMPACTION SHALL BE BY ROLLING WITH EARTH-MOVING EQUIPMENT.
D) CRA SHALL BE VIBRATED USING A PLATE VIBRATOR OR SIMILAR EQUIPMENT TO REDUCE VOIDS AND LIMIT SETTLEMENT.

DESIGNATION	DESCRIPTION OF BACKFILL MATERIALS
CRA	COARSE AGGREGATE: 1/2OT SIZE AS SHOWN IN PARENTHESES
SLM	SELECT LOCAL MATERIAL: FREE OF DEBRIS, ROOTS, FROZEN MATERIALS, ORGANIC MATTER, STONES GREATER THAN 9" DIAMETER, UNIFIED SOILS CLASSIFICATION: MLCL/ANCH
LM	LOCAL MATERIALS: FREE OF STONES GREATER THAN 5" DIAMETER AND FOREIGN MATERIALS.
SH	WHERE USED AS BEDDING FOR ROCK UNDERCUT. USE MATERIAL WITH SOME PLASTIC TENDENCIES SUCH TO SEAL ROCK FISSURES, SUCH AS SHALE-CLAY MIX.

NOT TO SCALE

REVISIONS NO.	DATE	DESCRIPTION	INIT.
1.	7/01/04	2004 D/CSM UPDATE	SDC
2.	2/22/06	VDEQ REVIEW COMMENTS	DHG

PIPE TRENCH DETAIL — DWG. NO. 1 — PAGE 15



DEPTH OF COVER PIPE SIZE	H
≤ 10"	36"
12" & 16"	48"
< 16"	CASE BY CASE

NOTE:
1. CONFIGURATION SHOWN FOR VALVES UP TO 16". FOR VALVES 16" AND LARGER SEE DWG. NO. 2A.
2. 4 BRICKS SHALL BE PLACED BENEATH EACH PIECE OF THE VALVE BOX WITH A MINIMUM OF 4" 21-A STONE BEDDING FOR EQUAL AND LEVEL ADJUSTMENT AND LOAD TRANSFER.
3. FIELD CUTS NECESSARY ON SHALLOW VALVE INSTALLATIONS MUST BE APPROVED BY THE UTILITY INSPECTOR.
4. REQUIRED AT THE OPTION OF THE DIRECTOR.

NOT TO SCALE

REVISIONS NO.	DATE	DESCRIPTION	INIT.
1.	9/21/04	2004 D/CSM UPDATE	SDC

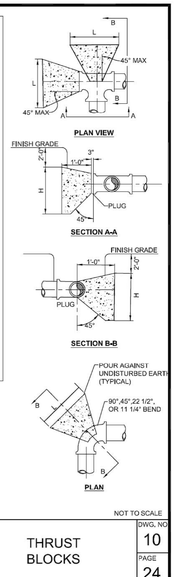
TYPICAL GATE VALVE AND VALVE BOX INSTALLATION — DWG. NO. 2 — PAGE 16

MINIMUM CONCRETE ANCHOR BLOCK DIMENSIONS - FEET

PIPE SIZE IN INCHES	DEGREE OF BEND	100 PSI WORKING PRESSURE L	100 PSI WORKING PRESSURE H	150 PSI WORKING PRESSURE L	150 PSI WORKING PRESSURE H	VOLUME OF CONCRETE CU. YD. (1)
6"	90°	2.5	1.5	2.5	2.0	0.24
	45°	2.0	1.0	2.5	1.0	0.13
	22 1/2°	1.0	1.0	1.5	1.0	0.06
	11 1/4°	1.0	1.0	1.5	1.0	0.06
	TEE/PLUG	2.5	1.5	2.5	2.0	0.24
8"	90°	2.5	2.5	4.0	2.0	0.40
	45°	2.0	1.5	2.5	2.0	0.19
	22 1/2°	1.5	1.0	2.5	1.0	0.10
	11 1/4°	1.5	1.0	2.0	1.0	0.09
	TEE/PLUG	2.5	2.5	4.0	2.0	0.40
12"	90°	4.0	3.0	5.0	4.0	0.76
	45°	3.5	2.0	4.0	2.5	0.46
	22 1/2°	2.5	1.5	2.5	1.0	0.24
	11 1/4°	2.5	1.5	2.0	1.5	0.16
	TEE/PLUG	4.0	3.0	5.0	4.0	0.76
16"	90°	5.5	4.0	7.5	4.5	1.43
	45°	4.0	3.0	5.0	3.5	0.76
	22 1/2°	3.0	2.0	3.0	3.0	0.30
	11 1/4°	3.0	2.0	4.5	3.0	0.20
	TEE/PLUG	5.5	4.0	7.5	4.5	1.43
20"	90°	6.5	5.5	8.5	6.0	1.99
	45°	5.0	4.0	6.0	4.5	1.11
	22 1/2°	3.5	3.0	4.5	3.0	0.58
	11 1/4°	3.5	3.0	4.5	3.0	0.58
	TEE/PLUG	6.5	5.5	8.5	6.0	1.99
24"	90°	8.0	6.0	11.0	6.5	2.37
	45°	5.5	5.0	7.0	5.5	1.36
	22 1/2°	4.0	3.5	5.0	4.0	0.50
	11 1/4°	4.0	3.5	5.0	4.0	0.50
	TEE/PLUG	8.0	6.0	11.0	8.5	2.37

(1) APPROXIMATE VOLUME OF CONCRETE BASED ON 100 PSI WORKING PRESSURE

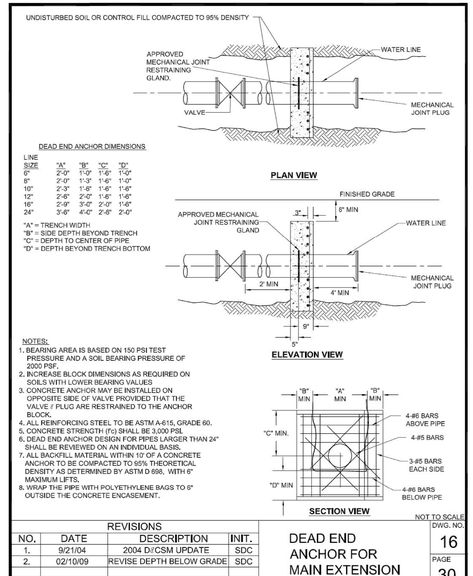
NOTES:
1. CONCRETE SHALL HAVE 3,000 PSI STRENGTH AT 28 DAYS.
2. THE ABOVE TABLE IS BASED ON 2,000 PSF SOIL BEARING CAPACITY AND WORKING PRESSURE AS INDICATED.
3. ANCHOR BLOCK DESIGN FOR OTHER DESIGN CIRCUMSTANCES OR PIPE LARGER THAN 24" SHALL BE REVIEWED ON AN INDIVIDUAL BASIS BY THE DIRECTOR.
4. HEIGHT OF CONCRETE ANCHOR BLOCK ABOVE PIPE CENTERLINE IS 1/3 THE H DIMENSION.
5. PROVIDE A 10 MIL PLASTIC BARRIER BETWEEN CONCRETE AND PIPE. OBTAIN INSPECTOR'S APPROVAL PRIOR TO PLACEMENT OF CONCRETE.



NOT TO SCALE

REVISIONS NO.	DATE	DESCRIPTION	INIT.
1.	7/01/04	2004 D/CSM UPDATE	DHG

THRUST BLOCKS — DWG. NO. 10 — PAGE 24



DEAD END ANCHOR DIMENSIONS

LINE SIZE	"A"	"B"	"C"	"D"
6"	2'-0"	1'-9"	1'-6"	1'-0"
8"	2'-0"	1'-3"	1'-6"	1'-0"
10"	2'-3"	1'-6"	1'-6"	1'-6"
12"	2'-6"	2'-0"	1'-6"	1'-6"
16"	2'-9"	2'-3"	2'-0"	1'-6"
24"	3'-6"	4'-0"	2'-6"	2'-0"

"A" = TRENCH WIDTH
"B" = SIDE DEPTH BEYOND TRENCH
"C" = DEPTH TO CENTER OF PIPE
"D" = DEPTH BEYOND TRENCH BOTTOM

NOTES:
1. BEARING AREA IS BASED ON 150 PSI TEST PRESSURE AND A SOIL BEARING PRESSURE OF 2000 PSF.
2. INCREASE BLOCK DIMENSIONS AS REQUIRED ON SOILS WITH LOWER BEARING VALUES
3. CONCRETE ANCHOR MAY BE INSTALLED ON OPPOSITE SIDE OF VALVE PROVIDED THAT THE VALVE / PLUG ARE RESTRAINED TO THE ANCHOR BLOCK.
4. ALL REINFORCING STEEL TO BE ASTM A-615, GRADE 60.
5. CONCRETE STRENGTH (f'c) SHALL BE 3,000 PSI.
6. DEAD END ANCHOR DESIGN FOR PIPES LARGER THAN 24" SHALL BE REVIEWED ON AN INDIVIDUAL BASIS.
7. ALL BACKFILL MATERIAL WITHIN 10' OF A CONCRETE ANCHOR TO BE COMPACTED TO 95% THEORETICAL DENSITY AS DETERMINED BY ASTM D 698, WITH 6" MAXIMUM LIFTS.
8. WRAP THE PIPE WITH POLYETHYLENE BAGS TO 6" OUTSIDE THE CONCRETE ENCASEMENT.

NOT TO SCALE

REVISIONS NO.	DATE	DESCRIPTION	INIT.
1.	9/21/04	2004 D/CSM UPDATE	SDC
2.	02/10/09	REVISE DEPTH BELOW GRADE	SDC

DEAD END ANCHOR FOR MAIN EXTENSION — DWG. NO. 16 — PAGE 30

WATER AND SANITARY SEWER NOTES

1. City will provide locations of existing water and sewer mains per Miss Utility laws and regulations. However, this contract specifically binds the contractor to perform test excavations, as necessary, to verify the actual utility location with respect to the owners field markings (+ / - 2 feet) and prevent damage to the utility. Utility markings shall be protected and referenced by the contractor to minimize the need for re-markings. If test excavations reveal the utility is not within these specified limits (+ / - 2 feet horizontally and a maximum of 8 feet vertically) the contractor shall stop work and notify the owner who will be responsible to re-mark the area in question or locate the utility by other means.

2. Contractor is responsible throughout the project to take the necessary precautions to prevent the freezing of water mains and services. Contractor shall be responsible for all damage and claims for damage that results from freezing due to his work.

3. Provide rodding and concrete thrust blocking of watermain appurtenances in accordance with City standards. Provide watermain taps as necessary for pressure testing and bacteriological sampling. All watermain testing is the Contractor's responsibility. City Inspector shall collect samples.

4. Upon completion of the assembly of all pipe, appurtenances and appropriate restraints, all joints shall be inspected for leaks under the existing system working pressure, in the presence of the City Utilities Inspector.

5. Disinfection and bacteriological testing procedures are to conform to AWWA C651, Section 10, latest edition. These procedures must also be witnessed by the City Utilities Inspector. All public main construction (water, sanitary sewer) and testing must be observed by the City Public Utilities Inspector.

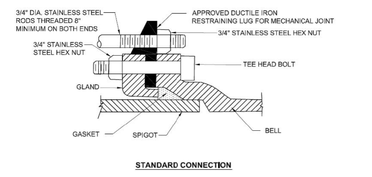
6. All materials for water main shall be onsite and anchor blocks installed per City standards before City Utility Inspector will authorize severing of the existing watermain. Contractor to pre-assemble new line and tie-in fittings prior to cutting the existing 6 inch water main. Effort shall be made to minimize the duration of the water service interruption. Notify Public Utilities and impacted customers 72 hours prior to any water main shutdown.

7. New water main shall be ductile iron class 52.

8. Procedure for fire hydrant relocations:
   A. City personnel close hydrant valve, when contractors request approved, and designate hydrant out of service with E.D.C.
   B. Contractor shall excavate to determine if hydrant valve is restrained to main tee (if yes go to "D").
   C. If hydrant valve is not restrained, contractor shall propose and have approved by the City a restraint system, then install it (typically, rodding will do).
   D. After hydrant is restrained and closed, contractor shall relocate existing fire hydrant, restrained throughout per City standards.

9. Raise all existing valve boxes and existing sanitary sewer manholes and adjust to finish grade.

10. All valve boxes shall be kept free from all stone, soil or other debris from the bottom of the valve nut to finish grade. The valve nut must be visible and centered in the box at final inspection. Contractor shall be responsible for excavating, cleaning and resetting valve boxes which do not meet this criteria, at no additional cost to the owner. Valve wrench test, set on nut and be able to turn 360 degrees without valve box conflict.



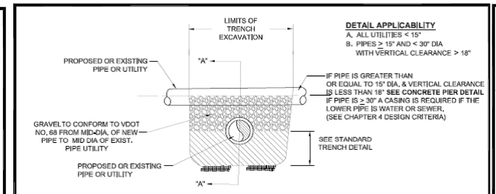
NOT TO SCALE

NOTES
1. ALL RODS, NUTS, WASHERS & SLEEVES TO BE 304 STAINLESS STEEL.
2. OTHER DESIGNS FOR CONNECTIONS MUST BE SUBMITTED FOR REVIEW & APPROVAL AND EQUAL OR EXCEED THIS STANDARD FOR STRUCTURAL AND CORROSION CHARACTERISTICS.
3. USE RODDING OR OTHER RESTRAINT DEVICE ONLY WHERE SPECIFICALLY APPROVED BY THE DIRECTOR OF PUBLIC UTILITIES.

VALVE SIZE	NUMBER OF 3/4" DIA RODS REQUIRED
3"	2
4"	2
6"	2
8"	2
10"	4
12"	6
16"	8
20"	12
24"	16
30"	20

REVISIONS NO.	DATE	DESCRIPTION	INIT.
1.	7/01/04	2004 D/CSM UPDATE	SDC

RODDING — DWG. NO. 17 — PAGE 31



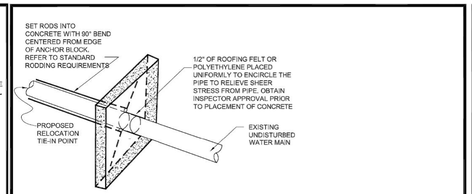
DETAIL APPLICABILITY
A. ALL UTILITIES < 15"
B. PIPES ≥ 15" AND < 30" DIA WITH VERTICAL CLEARANCE > 18"

NOTES
1. SEPARATION OF WATER MAINS AND SEWERS AS FOLLOWS:
   A. UNDER NORMAL CONDITIONS WATER LINES CROSSING SEWERS SHALL BE LAID TO PROVIDE A SEPARATION OF AT LEAST 18 INCHES BETWEEN THE BOTOM OF THE WATER LINE AND THE TOP OF THE SEWER WHENEVER POSSIBLE.
   B. UNDER UNUSUAL CONDITIONS WHEN LOCAL CONDITIONS PREVENT A VERTICAL SEPARATION DESCRIBED IN A. (ABOVE) THE FOLLOWING CONSTRUCTION SHALL BE USED:
      1. SEWERS PASSING OVER OR UNDER WATER MAINS SHALL BE CONSTRUCTED OF THE MATERIALS REQUIRED FOR WATER MAIN CONSTRUCTION AND PRESSURE TESTED IN PLACE TO 30 PSI WITHOUT LEAKAGE.
      2. WATER LINES PASSING UNDER SEWERS SHALL, IN ADDITION, BE PROTECTED BY PROVIDING:
         A. A VERTICAL SEPARATION OF AT LEAST 18 INCHES BETWEEN THE BOTTOM OF THE SEWER AND THE TOP OF THE WATER LINE;
         B. ADEQUATE STRUCTURAL SUPPORT FOR THE SEWERS TO TO PROTECT EXCESSIVE DEFLECTION OF THE JOINTS AND THE SETTLING ON AND BREAKING OF THE WATER LINE; AND
         C. THAT THE LENGTH OF THE WATER AND SEWER LINE BE CENTERED AT THE POINT OF CROSSING SO THAT THE JOINTS SHALL BE EQUIDISTANT AND SEPARATED AS FAR AS POSSIBLE.

NOT TO SCALE

REVISIONS NO.	DATE	DESCRIPTION	INIT.
1.	7/01/04	2004 D/CSM UPDATE	SDC
2.	2/22/06	VDEQ REVIEW COMMENTS	DHG

UTILITY AND PIPE CROSSINGS — DWG. NO. 18 — PAGE 32

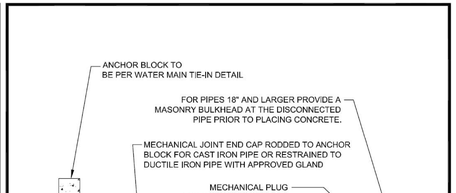


PROCEDURE:
1. CONSTRUCT ANCHOR BLOCK AT LEAST **SEVEN (7) DAYS** PRIOR TO WATER TIE-IN. (3 DAYS USING HIGH EARLY STRENGTH CONCRETE)
2. OBTAIN CITY APPROVAL OF ANCHOR BLOCK AND SCHEDULE DATE OF TIE-IN.
3. EXCAVATE AND ASSEMBLE ALL FITTINGS PRIOR TO WATER SHUTDOWN.
4. OBTAIN CITY APPROVAL OF PREARRANGED FITTINGS.
5. **CITY** SHALL TURN OFF THE WATER; CONTRACTOR SHALL DISINFECT PIPE PER REPAIR PROCEDURES.
6. CONNECT AND INSTALL PRE-ASSEMBLED ARRANGEMENT WITH ALL JOINTS RESTRAINED.
7. POUR CONCRETE AND REACTION BLOCKS. ALLOW **FOUR HOUR** SETTING TIME BEFORE BACKFILLING.
8. CITY RESTORES WATER SERVICE AND CHECKS FOR LEAKS BEFORE BACKFILLING IS COMPLETED BY THE CONTRACTOR.
9. ALL BACKFILL MATERIAL WITHIN 10' OF A CONCRETE ANCHOR TO BE COMPACTED TO 95% THEORETICAL DENSITY AS DETERMINED BY ASTM D 698, WITH 6" MAXIMUM LIFTS.

NOT TO SCALE

REVISIONS NO.	DATE	DESCRIPTION	INIT.
1.	7/01/04	2004 D/CSM UPDATE	SDC
2.	01/30/09	MODIFY TEXT	SDC

WATER MAIN TIE-IN TO EXISTING CAST IRON — DWG. NO. 20 — PAGE 34



NOTE: IN ALL CASES WHERE A SECTION OF ABANDONED WATER LINE IS TO BE CUT AND REMOVED THE EXPOSED ENDS SHALL BE SEALED PER "ABANDONED PIPE" DETAIL ABOVE.

NOT TO SCALE

REVISIONS NO.	DATE	DESCRIPTION	INIT.
1.	9/24/04	2004 D/CSM UPDATE	SDC

TYPICAL WATERMAIN ABANDONMENT DETAIL — DWG. NO. 56 — PAGE 70

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

Sanitary Sewer Details	6(2)
Water and Sewer Plan	6(3)
Water and Sewer Profiles	6(4)

WATER AND SAN. SEWER NOTES AND DETAILS		
SCALE 0 25' 50'	PROJECT U000-115-R32	SHEET NO. 6(1)

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

WATER & SANITARY SEWER DETAILS

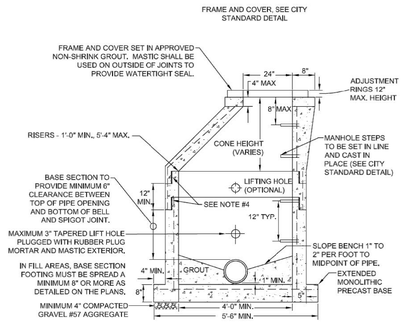
COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
TRAFFIC ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101, R201; C501	6(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

1. MANHOLE TO MEET CURRENT REQUIREMENTS OF ASTM C-478.
2. ALL REINFORCING TO MEET CURRENT REQUIREMENTS OF ASTM A-615.
3. CONCRETE TO BE CLASS A-4.
4. JOINT TO MEET CURRENT REQUIREMENTS OF ASTM C-443.
5. PIONEER 301 MASTIC OR APPROVED EQUAL SHALL BE USED IN ADDITON TO THE JOINT SPECIFIED.
6. INVERT SHAPING TO CONFORM TO CITY STANDARD DETAIL.
7. FLEXIBLE JOINTS, MEETING CURRENT REQUIREMENTS OF ASTM C-923, ARE REQUIRED ON ALL PIPE CONNECTIONS TO MANHOLES. WHERE FIELD CONDITIONS WILL NOT PERMIT THE USE OF A SLEEVE, A MAXIMUM 24" STUB MAY BE USED.
8. JOINT CONFIGURATION MAY BE CAST BELL-UP OR SPIGOT-UP.
9. MANUFACTURER'S NAME TO BE ON INSIDE FACE OF CONE.
10. EXTERIOR OF MANHOLE TO BE ASPHALT-COATED. TWO (2) COATS REQUIRED.

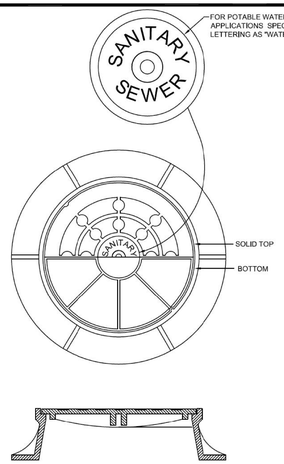


NOT TO SCALE

NO.	DATE	DESCRIPTION	INIT.
1.	7/01/04	2004 D/CSM UPDATE	DHG
2.	05/15/09	UPDATE ASTM REFERENCES	SDC

4'-0" I.D. SANITARY SEWER MANHOLE

DWG. NO. 35
PAGE 49



NOTES:

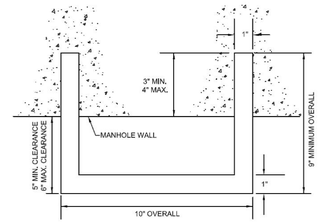
1. REFER TO PUBLIC UTILITIES PRODUCT MANUAL FOR APPROVED FRAME AND COVERS
2. FRAME AND COVER TO BE RATED FOR HIGHWAY TRAFFIC LOADS (HS-20)

NOT TO SCALE

NO.	DATE	DESCRIPTION	INIT.
1.	7/01/04	2004 D/CSM UPDATE	DHG
2.	2/22/06	VDEQ REVIEW COMMENTS	DHG

MANHOLE FRAME AND LID

DWG. NO. 38
PAGE 52



PLAN

NOTES:
1. APPROVED PLASTIC COATED STEEL REINFORCED MANHOLE SAFETY STEP (SEE PUBLIC UTILITIES PRODUCT MANUAL).
2. MANHOLE STEPS TO BE CAST IN PLACE AND ORIENTED IN A SINGLE VERTICAL LINE UNLESS OTHERWISE APPROVED.

NOT TO SCALE

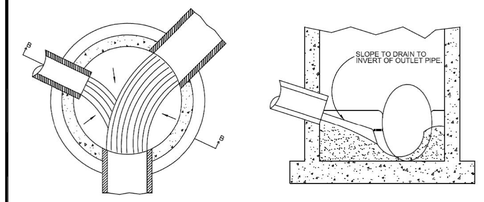
NO.	DATE	DESCRIPTION	INIT.
1.	7/01/04	2004 D/CSM UPDATE	DHG

MANHOLE STEP DETAIL

DWG. NO. 39
PAGE 53

NOTES:

1. MANHOLE TO BE FORMED AND CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE STANDARD OR SPECIAL DRAWING. THE INVERT SHAPING AS DETAILED HEREON IS TO CONSIST OF PORTLAND CEMENT CONCRETE M/X CONFORMING TO CLASS A-3 OR CLASS C-1, EXCEPT THAT 25% OF COURSE AGGREGATE MAY BE UP TO 4" IN DIAMETER AND CONSIST OF STONE, BROKEN BRICK, BROKEN CONCRETE, OR BROKEN CONCRETE BLOCK. THE SURFACE SHALL BE LEFT SMOOTH BY MEANS OF HAND TROWELLING. NONE OF THE COARSE AGGREGATE SHALL REMAIN EXPOSED. BENCHES ARE TO HAVE A LIGHT BROOM FINISH.
2. DETAILS OF INVERT SHAPING AS SHOWN HEREON ARE FOR EXAMPLE PURPOSES ONLY. EACH MANHOLE IS TO BE SHAPED INDIVIDUALLY TO BEST FIT THE PARTICULAR INLET AND OUTLET CONFIGURATION AND FLOW LINES.



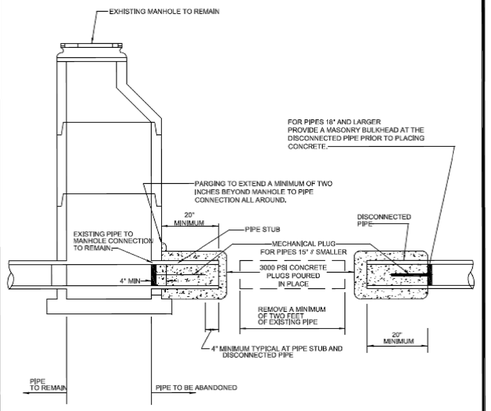
PLAN SECTION B-B

NOT TO SCALE

NO.	DATE	DESCRIPTION	INIT.
1.	7/01/04	2004 D/CSM UPDATE	SDC

SANITARY SEWER MANHOLE INVERT SHAPING

DWG. NO. 40
PAGE 54

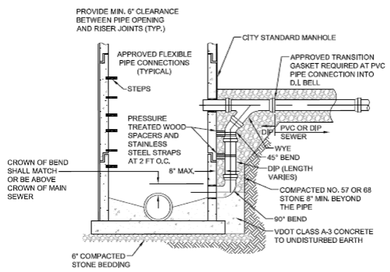


NOT TO SCALE

NO.	DATE	DESCRIPTION	INIT.
1.	9/21/04	2004 D/CSM UPDATE	SDC

SANITARY SEWER PIPE ABANDONMENT AT A MANHOLE

DWG. NO. 43
PAGE 57



NOTES:

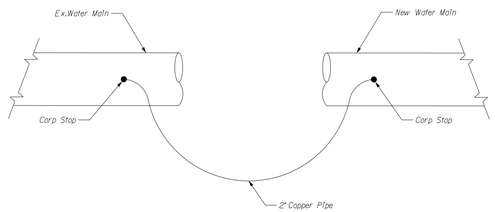
1. SEE APPLICABLE STANDARD DRAWINGS FOR ALL MANHOLE REQUIREMENTS.
2. USE DROP CONNECTION WHEN DROP EXCEEDS TWO FEET.
3. PIPE AND FITTINGS FOR DROP TO BE SAME SIZE AS INCOMING SEWER.
4. DROP CONNECTION MAY NOT INTERFERE WITH MANHOLE STEPS.
5. VDOT CLASS A-3 CONCRETE TO FILL DROP CONNECTION TRENCH TO LIMITS SHOWN. DROP CONNECTION CONCRETE WIDTH TO BE THE SAME AS APPROACH TRENCH.
6. MATERIAL SEE PUBLIC UTILITIES PRODUCT MANUAL.
7. STRAPS TO BE 2" WIDE X 1/8" THICK **STAINLESS STEEL**, ANCHORED TO MANHOLE WALL WITH 1/2" **STAINLESS STEEL** ANCHOR BOLTS, EMBEDDED 2 1/2" MINIMUM INTO THE WALL.
8. ALL DROP PIPE AND FITTINGS MUST BE DUCTILE IRON FOR THIS DESIGN.

NOT TO SCALE

NO.	DATE	DESCRIPTION	INIT.
1.	7/01/04	2004 D/CSM UPDATE	DHG

OUTSIDE DROP CONNECTION ALTERNATE A

DWG. NO. 44A
PAGE 58A



Notes:
1. Use 1" Corp Stop for 8" pipe and smaller. Use 2" Corp Stop for 12" pipe.
2. Place Corp Stops near Main point to minimize length of connecting copper pipe.

Temporary Water Main Testing Detail
Not To Scale

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

WATER AND SANITARY SEWER DETAILS

SCALE 0 25' 50'

PROJECT	SHEET NO.
U000-115-R32	6(2)

PROJECT MANAGER Kimberly Cameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600 ____.
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc._____.

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101, R201; C501	6(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Contractor's Notes:

1. New manholes will require flat top in lieu of standard cone.

2. City personnel will make re-connection of water service to existing meter yoke upon satisfactory results of bacteriological and pressure tests.

Ex.6" Water Main. Approx. location depicted based on City GIS data.

STA. 50+00.00
Connect to Ex.6" Water Main with a 6" 11.25° Bend, Transition Coupling, and Steel Rods (per City Std. Dwg. Nos. 17 and 20). Roll bend to accommodate alignment and connection.

135 LF - 6" CL 52 DI Water Main

44 LF - 8" SDR 35 PVC SAN Sewer Main

Cut, Cap, and Abandon approx. 110 LF of Ex. 6" Water Main

STA. 10+00.00; Replace Ex. MH.
4.5 FT - SAN Sewer MH
1 EA. - Std. Frame & Cover F&C-1

Cut, Cap & Abandon approx. 38 LF of Ex. 8" SAN Sewer

STA 10+47.99
4.6 FT - SAN Sewer MH
1 EA - Std. Frame & Cover F&C-1

29 LF - 8" SDR 35 PVC SAN Sewer Main

Remove 28 LF of EX. 8" SAN Sewer

STA 10+81.12; Replace Ex. MH.
4.4 FT - SAN Sewer MH
1 EA - Std. Frame & Cover F&C-1

5' offset from gutter (typ.)

32 LF - 1" Water Service Line
Connect to Ex. Water Meter

8 LF - 6" CL 52 DI Water Main
1 EA. - 6" G.V. & Box
Connect Ex. F.H. to New 6" Main w/ 6" D.I. Pipe, 6" Tee and 6" 45° Bend

STA. 51+18.90
1 EA. - 6" G.V. & Box
Connect to Ex.6" Water Main with a 6" 45° Bend, Transition Coupling, and Steel Rods (per City Std. Dwg. Nos. 17 and 20).

1 EA. 6" 11.25° Bend
1 EA. 6" 45° Bend
Roll Bends to Accommodate Alignment

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)

Water and Sewer Notes and Details 6(1), 6(2)
Water and Sewer Profiles 6(4)

WATER AND SEWER PLANS

SCALE	PROJECT	SHEET NO.
0 25' 50'	U000-115-R32	6(3)

1/9/2015
8:34:32 AM

u103008_006_4.dgn
Plotted By: localuser

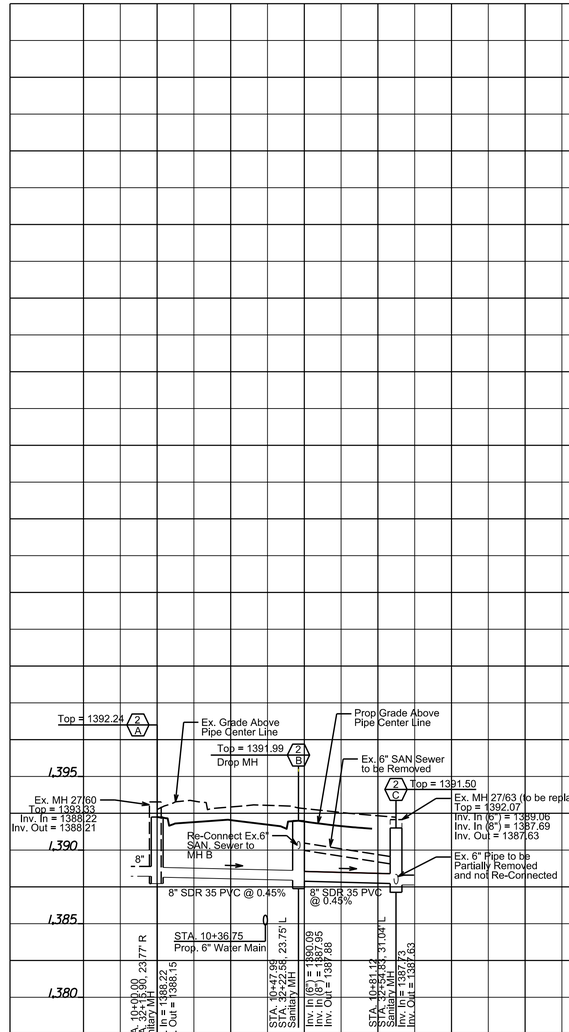
PROJECT MANAGER _ _ Tom Hartman (540)434-5928 (Harrisonburg)
SURVEYED BY _ _ NXL Inc. (804)644-4600 _ .
DESIGN SUPERVISED BY _ _ Rick DeLong (540)248-0436
DESIGNED BY _ _ McCormick Taylor, Inc. _ _ _ .

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
1/13/15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Glen Allen, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	U000-115-R32, P101, R201, C501	6(4)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



Notes:

1. Sewer main passing over water mains shall be pressure tested to 30 psi in place without leakage prior to backfilling.

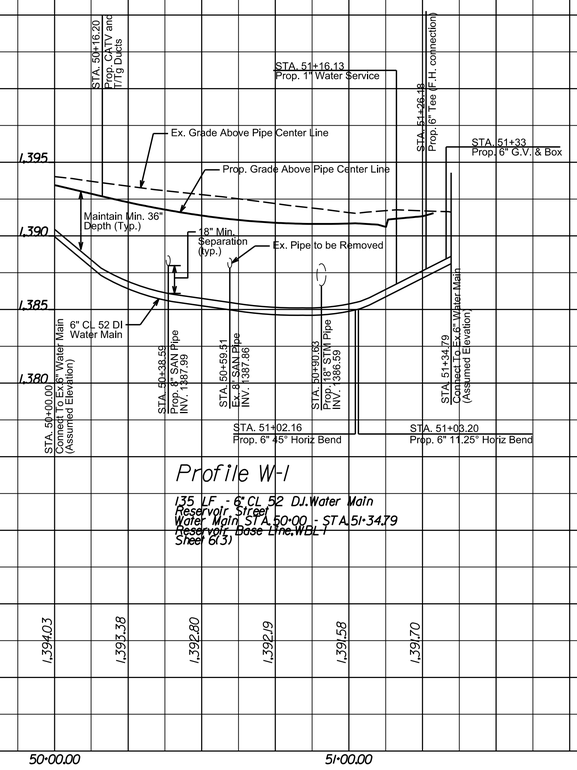
2. Water mains passing under sewers shall be protected by providing:

   a. A vertical separation of at least eighteen inches between the bottom (invert) of the sewer and the top (crown) of the water main;

   b. Adequate structual support for the sewers to prevent excessive deflection of the joints and the settling on and breaking of the water main; and

   c. That the length of the water and sewer mains be centered at the point of the crossing so that joints shall be equidistant and separated as far as possible.

3. No water pipes shall pass through or come in contact with any part of a sanitary or storm sewer manhole. There shall be no connection between sewers and potable water system devices used for flushing.



WATER AND SEWER PROFILES	HORZ. 1" = 25' VERT. 1" = 5'	PROJECT U000-115-R32	SHEET NO. 6(4)

PROJECT MANAGER Kimberly Kameron, P.E. (540)434-5928 (Harrisonburg)
SURVEYED BY NXL, Inc. (804)644-4600
DESIGN SUPERVISED BY Rick DeLong (540)248-0436
DESIGNED BY McCormick Taylor, Inc.

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-115-R32; C501	7

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

End Construction Parking Lot Sta.61+98.68

Begin Construction Parking Lot Sta.60+16.67

Begin Project U000-115-R32,P101,C501 Sta. 10+30.38

PARKING LOT

CARLTON STREET

TENNIS COURT

ROUNDABOUT

RESERVOIR STREET

N 16° 59' 30" W

N 39° 29' 17" W

N 54° 05' 30" E

S 40° 04' 00" E

S 17° 45' 19" E

S 18° 09' 43" E

S 32° 09' 11" E

N 75° 33' 54" E

Begin Construction Reservoir St. Sta.30+87.9

End Project U000-115-R32,PE101,R201,C501 Sta. 15+91.8

End Construction Reservoir St. Sta.27+62

LEGEND

T/Tg Duct	Denotes Verizon UG Line
T/Tg	Denotes Verizon Aerial Line
CATV Duct	Denotes Comcast UG Line
E	Denotes HEC UG Line
E	Denotes HEC OH Line

UTILITY RELOCATION PLAN

SCALE	PROJECT	SHEET NO.
0 25' 50'	U000-115-R32	7

1/9/2015
10:15:53 AM

PROJECT MANAGER Tom_Hartman_(Harrisonburg)
SURVEYED BY NXL,Inc._____.
DESIGN SUPERVISED BY Rick_DeLong_____
DESIGNED BY McCormick_Taylor,Inc._____.

Carlton Street

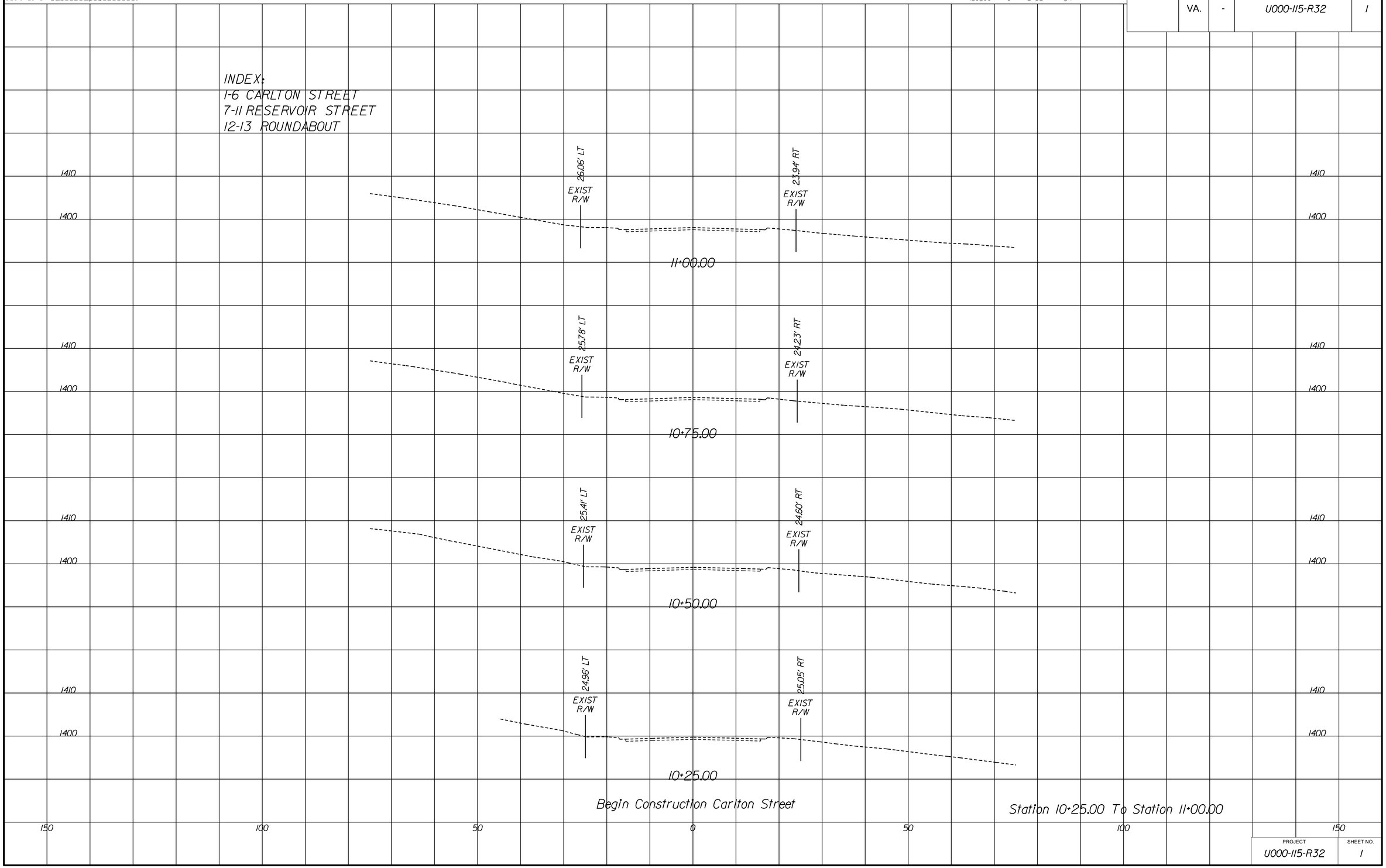
CROSS SECTIONS

SCALE 1 IN. = 10 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	-	U000-115-R32	1

INDEX:
1-6 CARLTON STREET
7-11 RESERVOIR STREET
12-13 ROUNDABOUT



PROJECT	SHEET NO.
U000-115-R32	1

1/9/2015
10:15:53 AM

PROJECT MANAGER Tom_Hartman_(Harrisonburg)
SURVEYED BY NXL,Inc._____.
DESIGN SUPERVISED BY Rick_DeLong_____
DESIGNED BY McCormick_Taylor,_Inc._____.

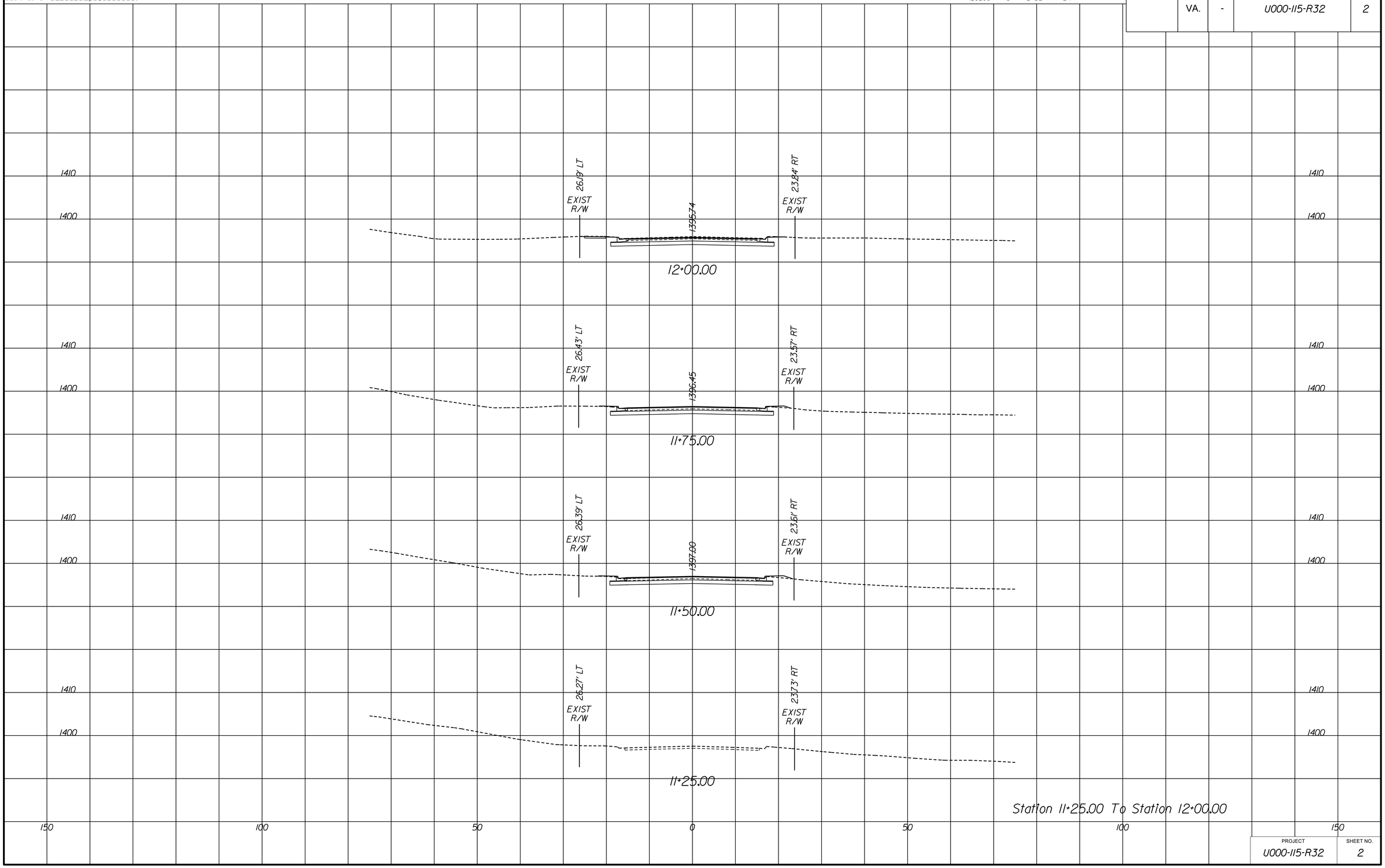
Carlton Street

CROSS SECTIONS

SCALE 1 IN. = 10 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	-	U000-115-R32	2



Station 11+25.00 To Station 12+00.00

PROJECT	SHEET NO.
U000-115-R32	2

1/9/2015
10:15:54 AM

PROJECT MANAGER Tom_Hartman_(Harrisonburg)
SURVEYED BY NXL,Inc._____.
DESIGN SUPERVISED BY Rick_DeLong_____
DESIGNED BY McCormick_Taylor,Inc._____.

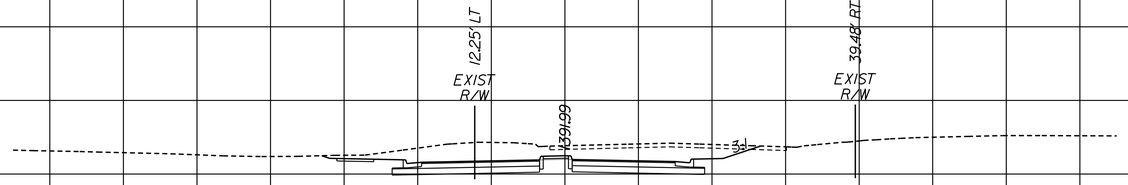
Carlton Street

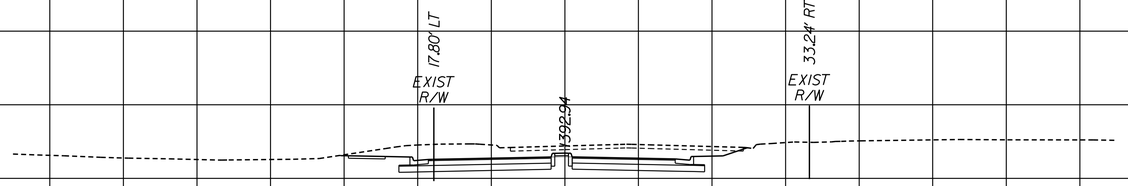
CROSS SECTIONS

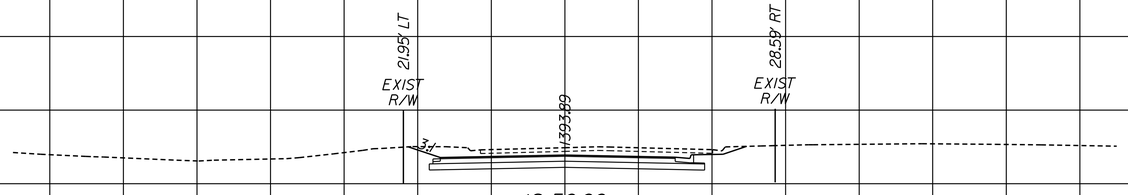
SCALE 1 IN. = 10 FT

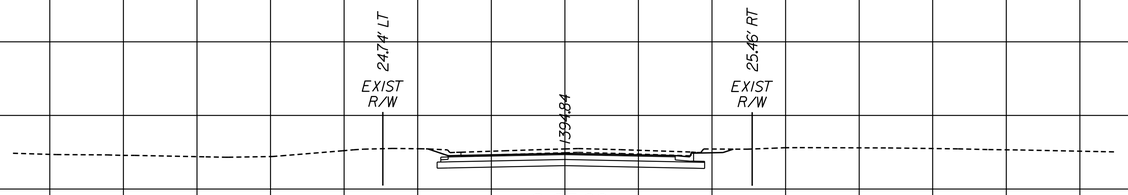
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	-	U000-115-R32	3









Station 12+25.00 To Station 13+00.00

150 100 50 0 50 100 150

PROJECT	SHEET NO.
U000-115-R32	3

1/9/2015
10:55:54 AM

PROJECT MANAGER Tom_Hartman_(Harrisonburg)
SURVEYED BY NXL,Inc._____.
DESIGN SUPERVISED BY Rick DeLong_____
DESIGNED BY McCormick_Taylor,Inc._____.

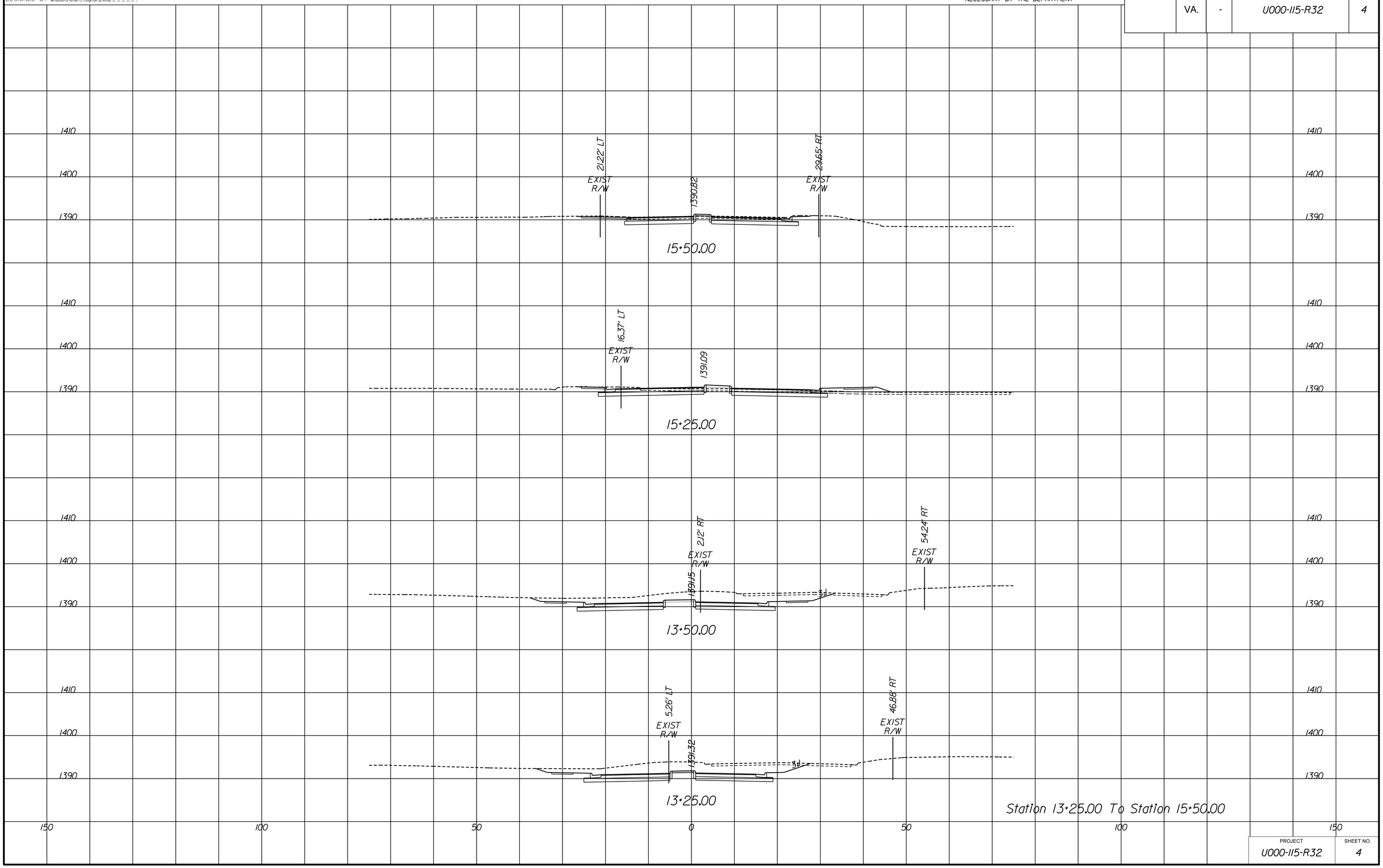
Carlton Street

CROSS SECTIONS

SCALE 1 IN. = 10 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	-	U000-115-R32	4



Station 13+25.00 To Station 15+50.00

PROJECT	SHEET NO.
U000-115-R32	4

1/9/2015
10:15:54 AM

PROJECT MANAGER Tom_Hartman_(Harrisonburg)
SURVEYED BY NXL,Inc._____.
DESIGN SUPERVISED BY Rick_DeLong_____
DESIGNED BY McCormick_Taylor,Inc._____.

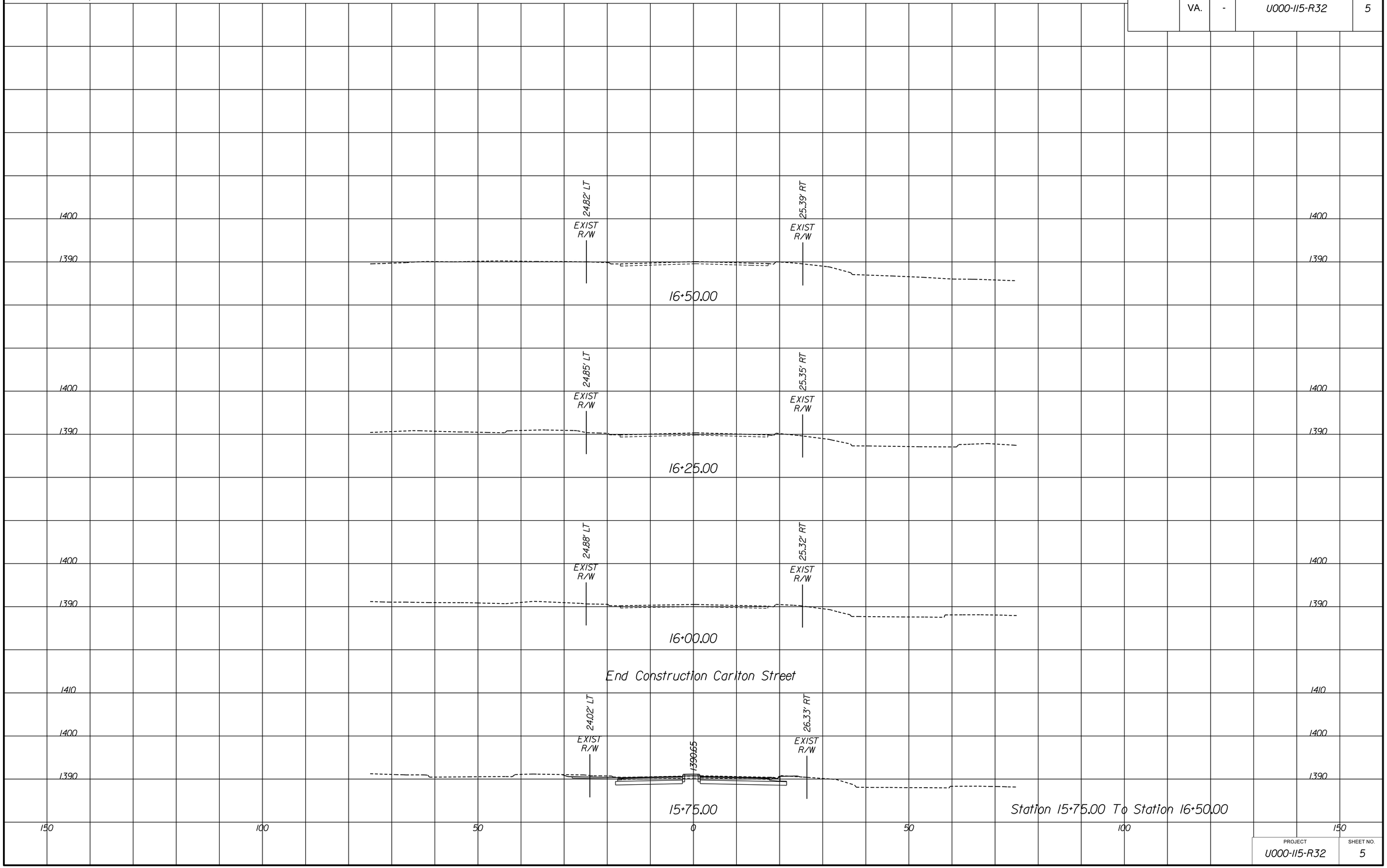
Carlton Street

CROSS SECTIONS

SCALE 1 IN. = 10 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	-	U000-115-R32	5



PROJECT	SHEET NO.
U000-115-R32	5

1/9/2015
10:15:54 AM

PROJECT MANAGER Tom_Hartman_(Harrisonburg)
SURVEYED BY NXL,Inc._____.
DESIGN SUPERVISED BY Rick_DeLong_____
DESIGNED BY McCormick_Taylor,_Inc._____.

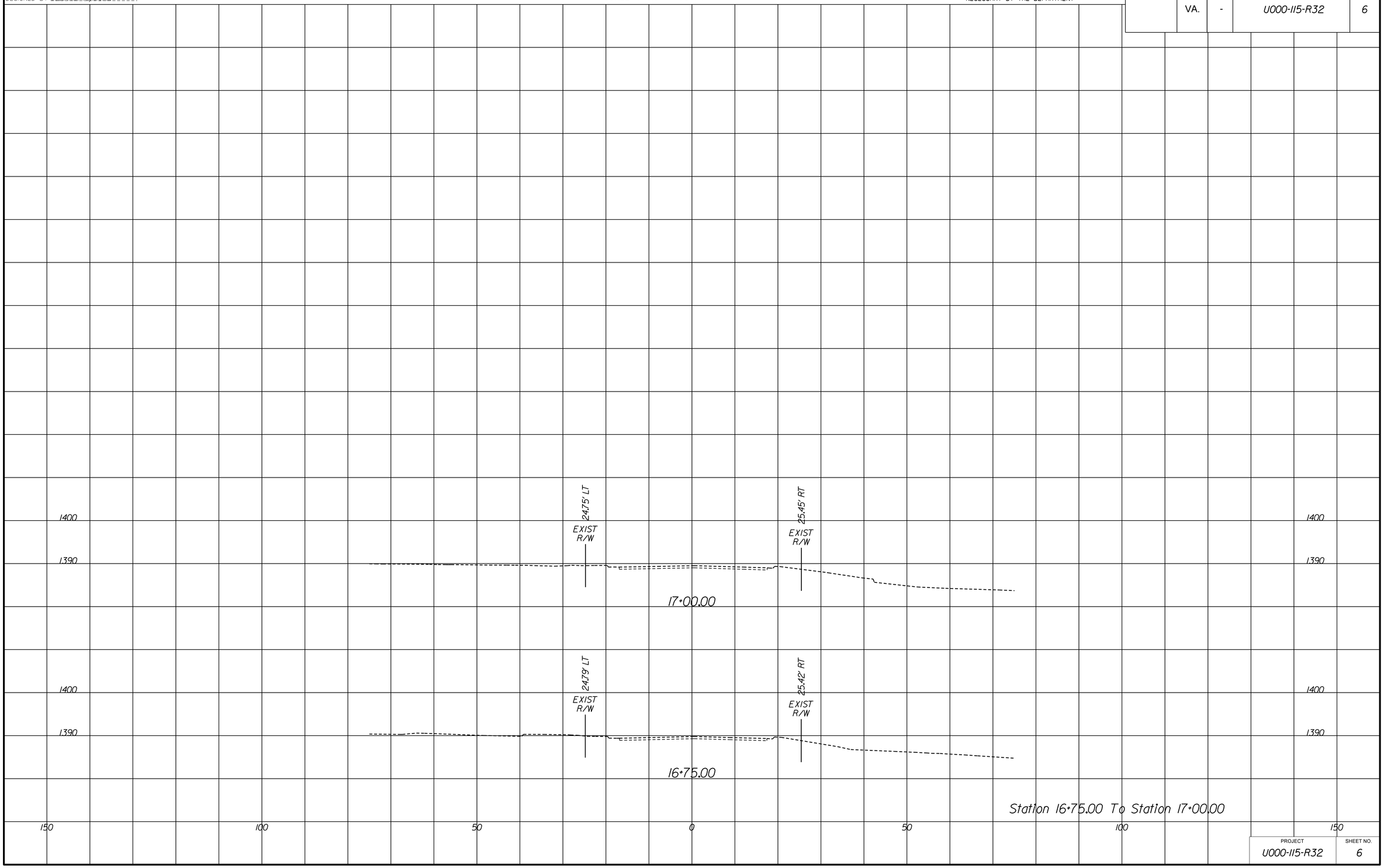
Carlton Street

CROSS SECTIONS

SCALE 1 IN. = 10 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	-	U000-115-R32	6



Station 16+75.00 To Station 17+00.00

PROJECT	SHEET NO.
U000-115-R32	6

1/9/2015
10:15:55 AM

PROJECT MANAGER Tom_Hartman_(Harrisonburg)
SURVEYED BY NXL_Inc._____.
DESIGN SUPERVISED BY Rick_DeLong_____
DESIGNED BY McCormick_Taylor_Inc._____.

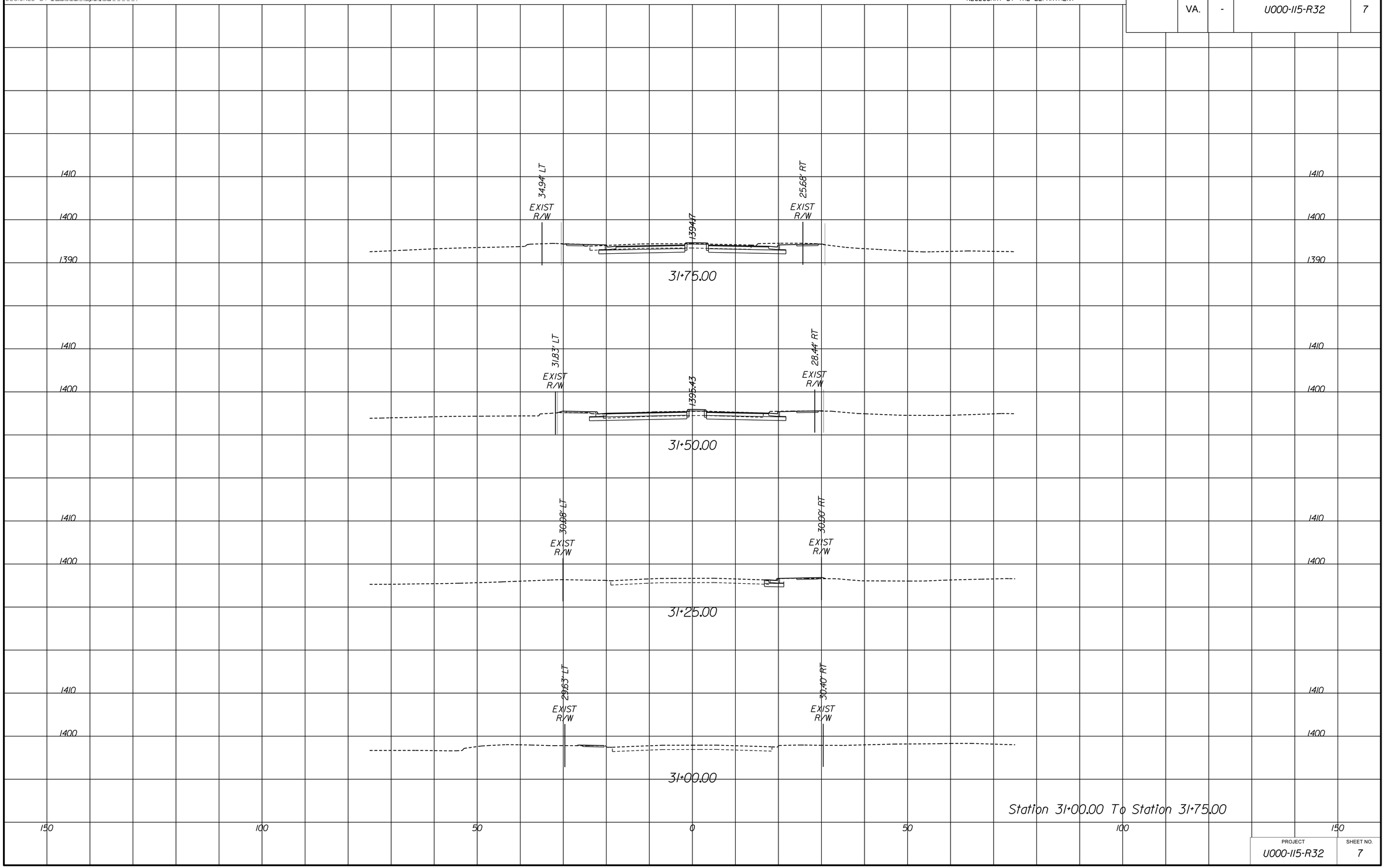
Reservoir Street

CROSS SECTIONS

SCALE 1 IN. = 10 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	-	U000-115-R32	7



Station 31+00.00 To Station 31+75.00

PROJECT	SHEET NO.
U000-115-R32	7

1/9/2015
10:15:56 AM

PROJECT MANAGER Tom_Hartman_(Harrisonburg)
SURVEYED BY NXL_Inc._____.
DESIGN SUPERVISED BY Rick_DeLong_____
DESIGNED BY McCormick_Taylor_Inc._____.

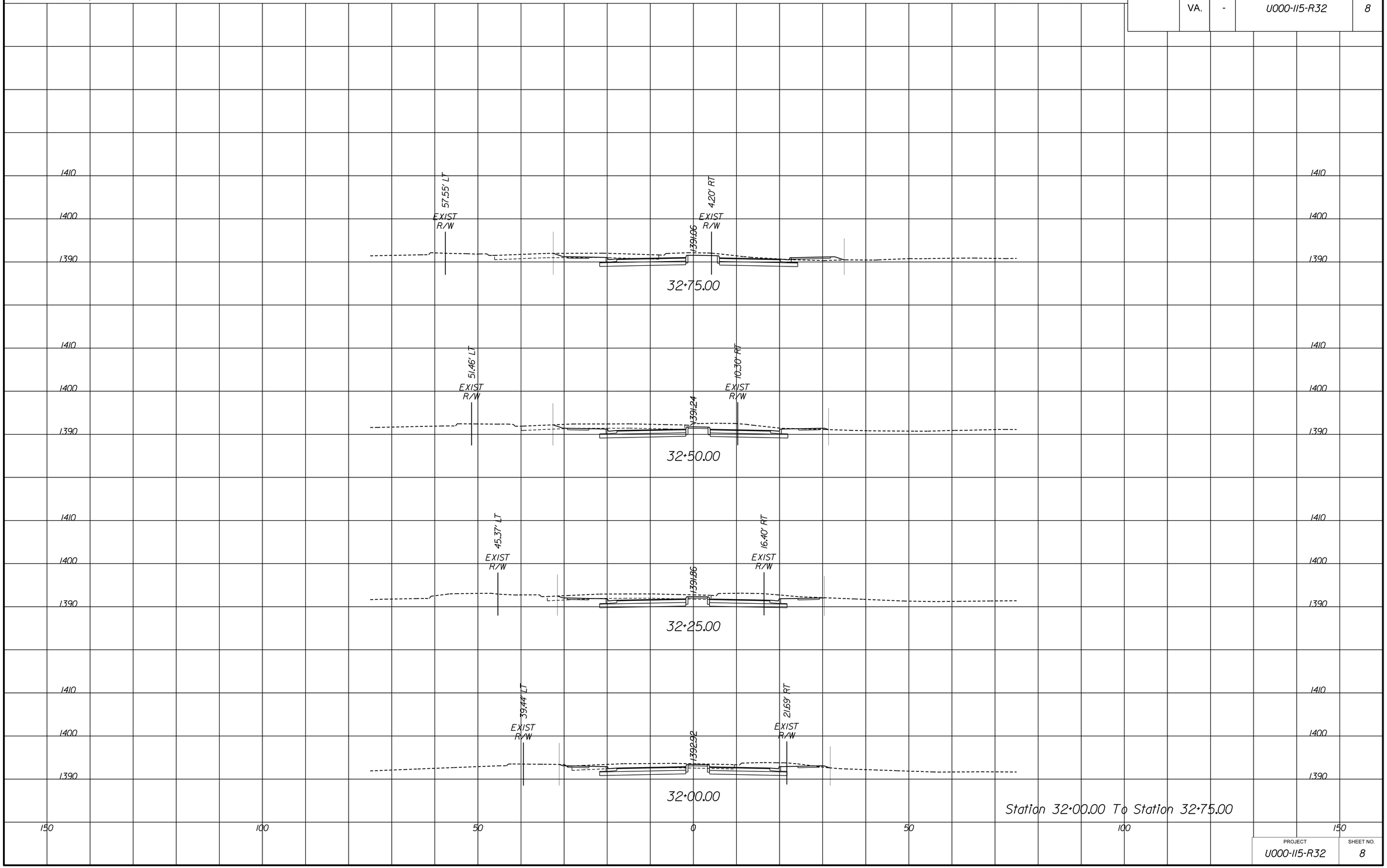
Reservoir Street

CROSS SECTIONS

SCALE 1 IN. = 10 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	-	U000-115-R32	8



Station 32+00.00 To Station 32+75.00

PROJECT	SHEET NO.
U000-115-R32	8

1/9/2015
10:15:56 AM

PROJECT MANAGER Tom_Hartman_(Harrisonburg)
SURVEYED BY NXL,Inc._____.
DESIGN SUPERVISED BY Rick_DeLong_____
DESIGNED BY McCormick_Taylor,Inc._____.

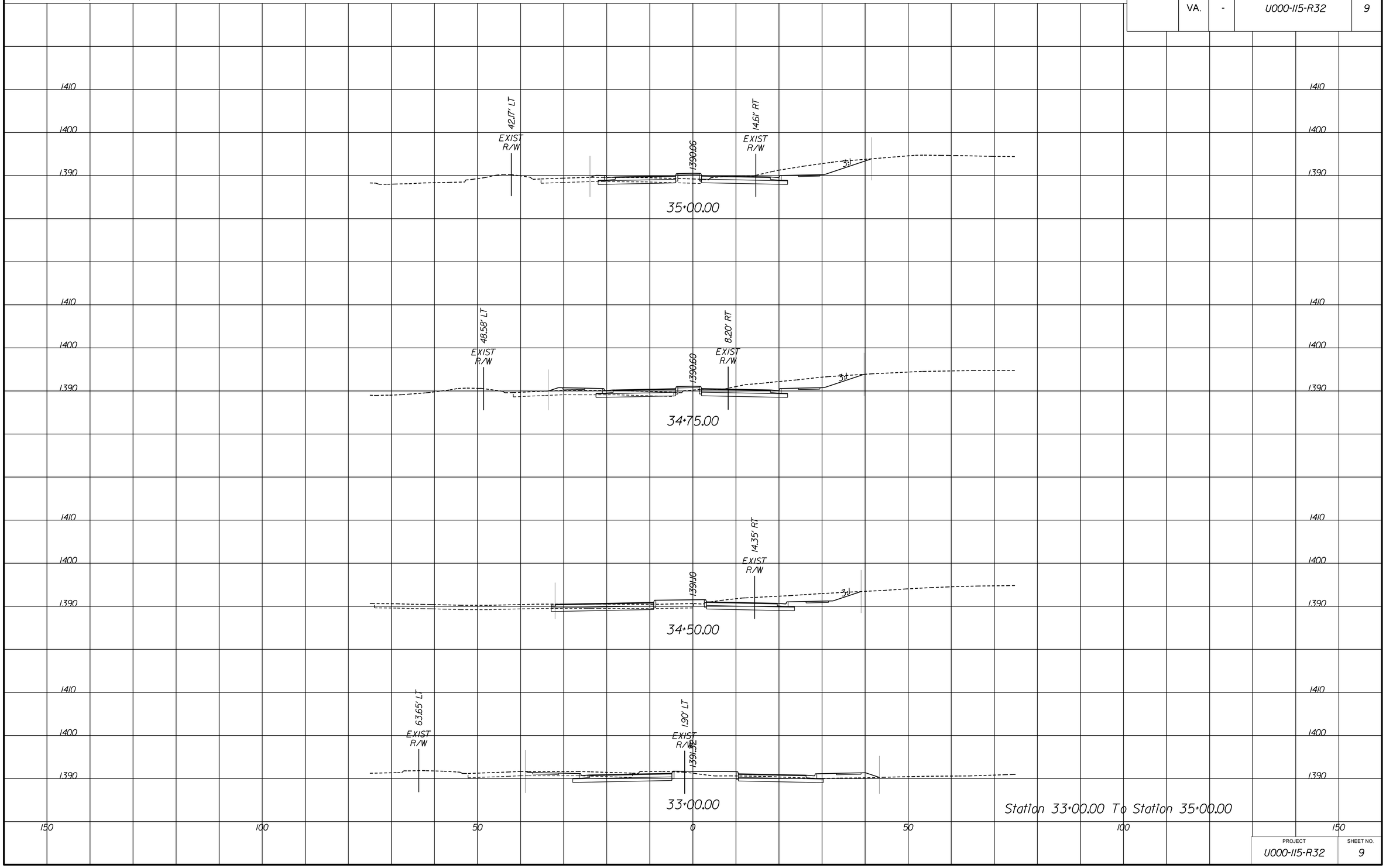
Reservoir Street

CROSS SECTIONS

SCALE 1 IN. = 10 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	-	U000-115-R32	9



Station 33+00.00 To Station 35+00.00

PROJECT	SHEET NO.
U000-115-R32	9

1/9/2015
10:15:56 AM

PROJECT MANAGER Tom_Hartman_(Harrisonburg)
SURVEYED BY NXL,Inc._____.
DESIGN SUPERVISED BY Rick_DeLong_____
DESIGNED BY McCormick_Taylor,Inc._____.

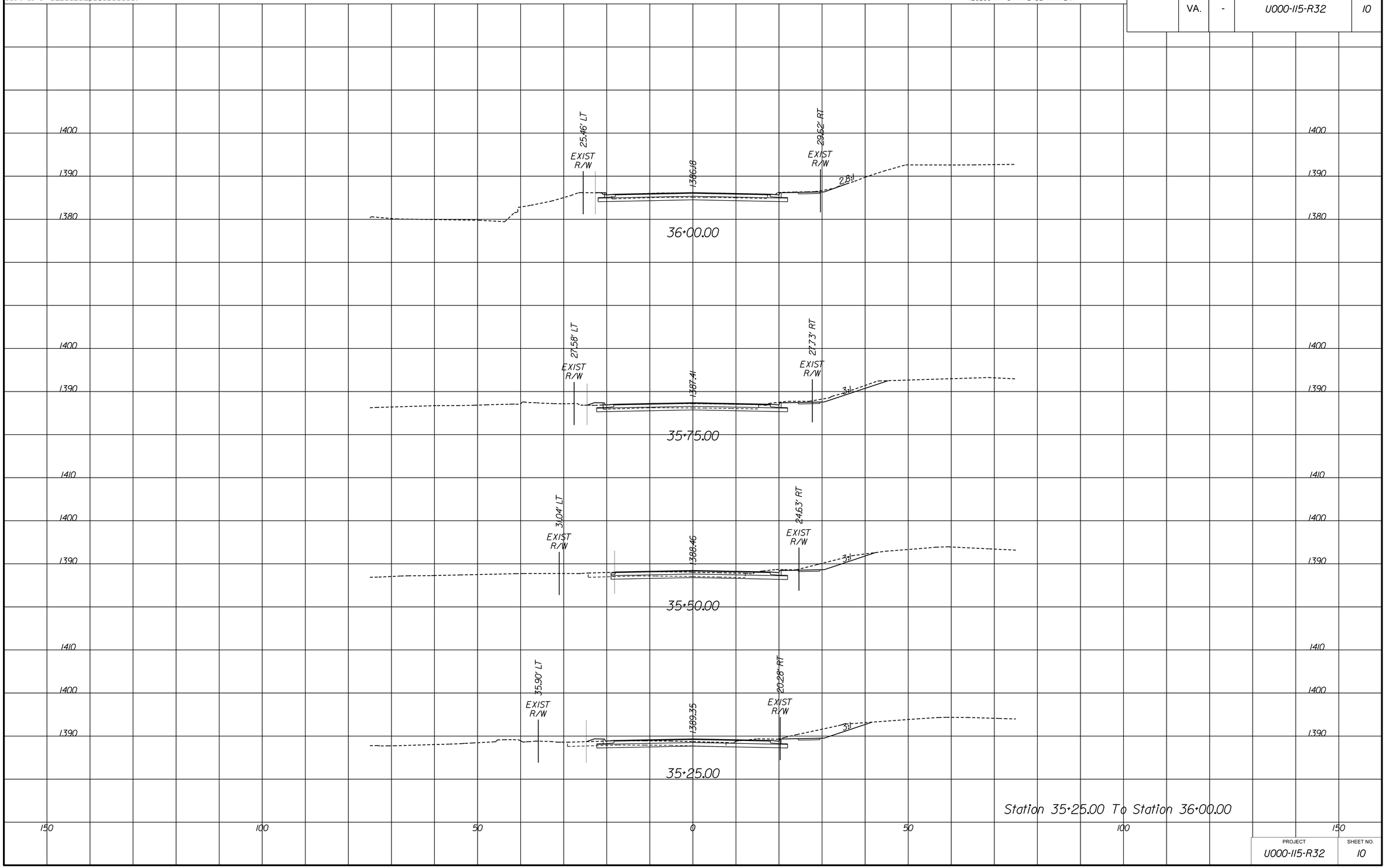
Reservoir Street

CROSS SECTIONS

SCALE 1 IN. = 10 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	-	U000-115-R32	10



Station 35+25.00 To Station 36+00.00

PROJECT	SHEET NO.
U000-115-R32	10

1/9/2015
10:15:56 AM

PROJECT MANAGER Tom_Hartman_(Harrisonburg)
SURVEYED BY NXL,Inc._____.
DESIGN SUPERVISED BY Rick_DeLong_____
DESIGNED BY McCormick_Taylor,_Inc._____.

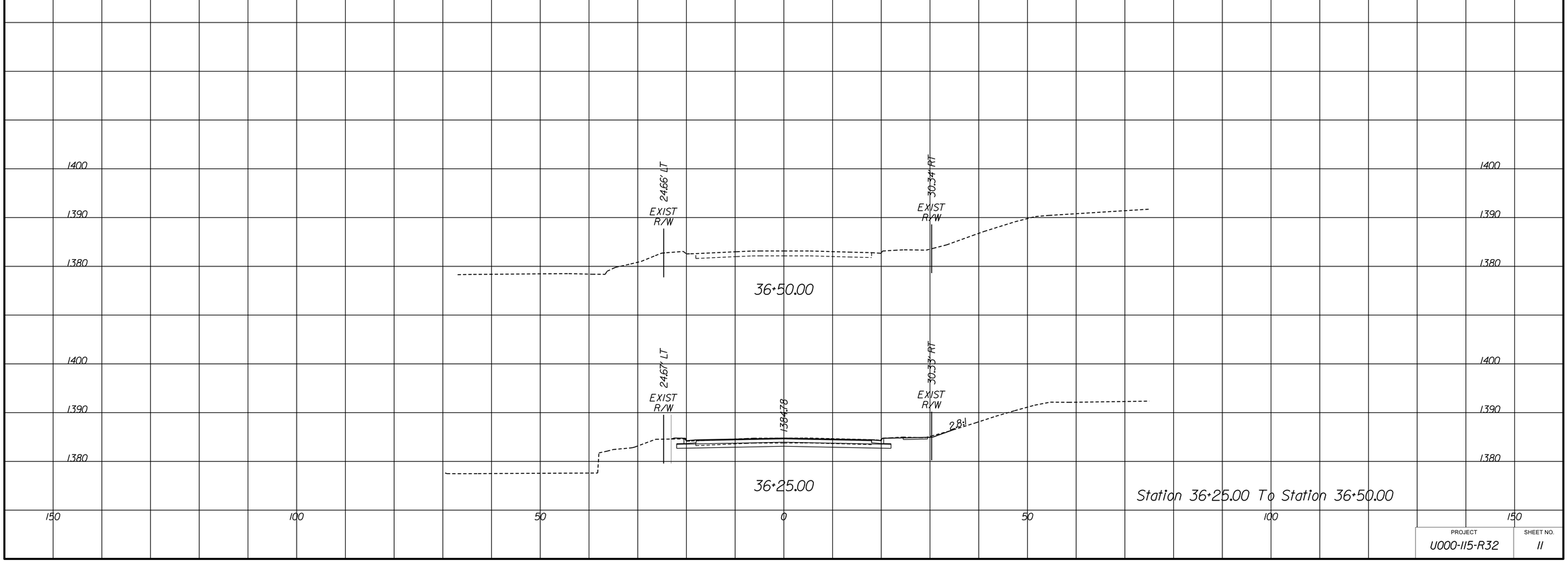
Reservoir Street

CROSS SECTIONS

SCALE 1 IN. = 10 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	-	U000-115-R32	11



Station 36+25.00 To Station 36+50.00

PROJECT	SHEET NO.
U000-115-R32	11

1/9/2015
10:15:57 AM

PROJECT MANAGER Tom_Hartman_(Harrisonburg)
SURVEYED BY NXL,Inc._____.
DESIGN SUPERVISED BY Rick_DeLong_____
DESIGNED BY McCormick_Taylor,_Inc._____.

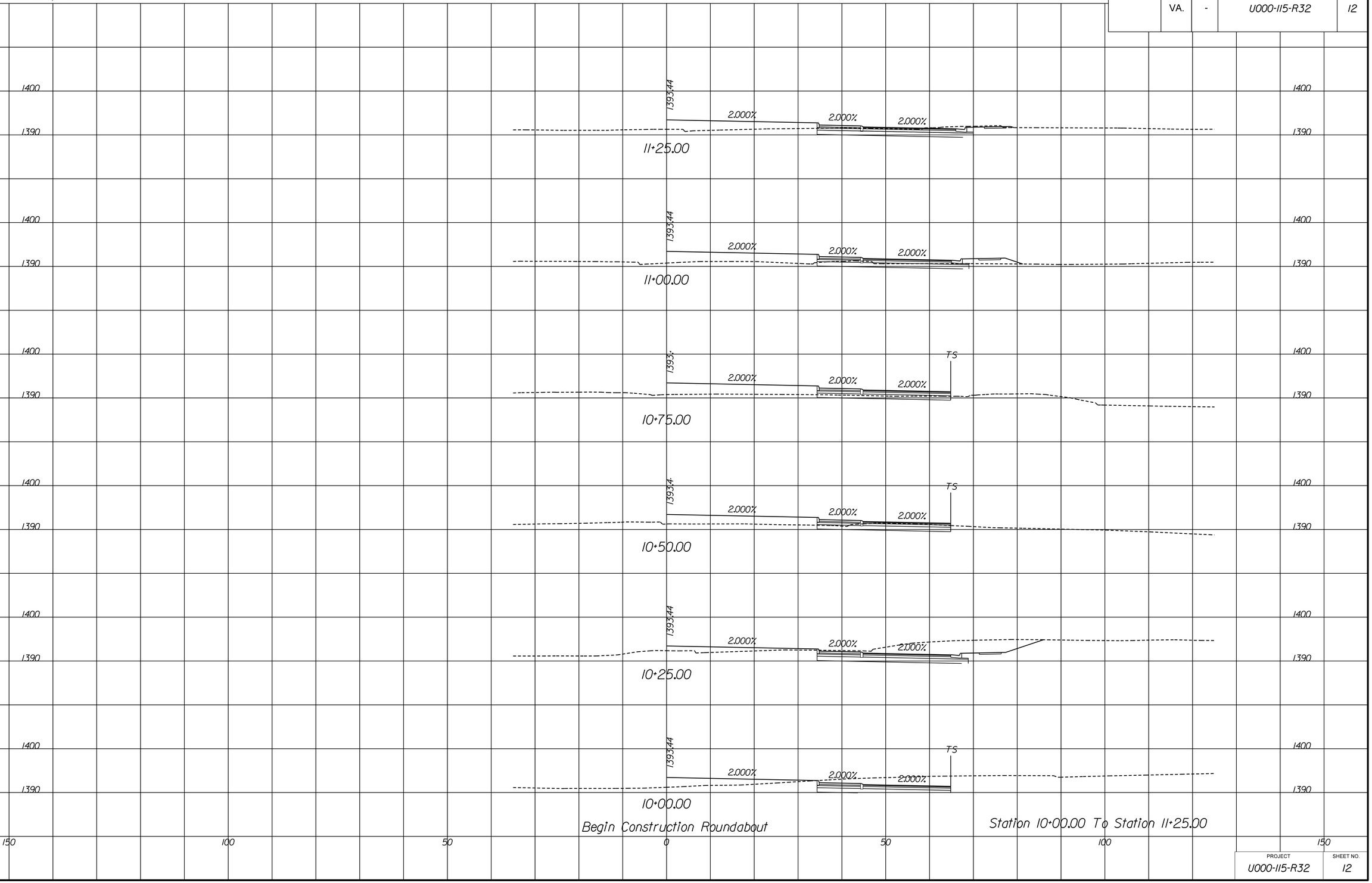
Roundabout

CROSS SECTIONS

SCALE 1 IN. = 10 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	-	U000-115-R32	12



PROJECT	SHEET NO.
U000-115-R32	12

1/9/2015
10:15:57 AM

PROJECT MANAGER Tom_Hartman_(Harrisonburg)
SURVEYED BY NXL,Inc._____.
DESIGN SUPERVISED BY Rick_DeLong_____
DESIGNED BY McCormick_Taylor,Inc._____.

Roundabout

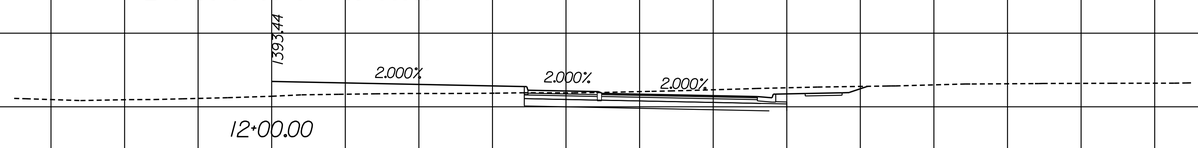
CROSS SECTIONS

SCALE 1 IN. = 10 FT

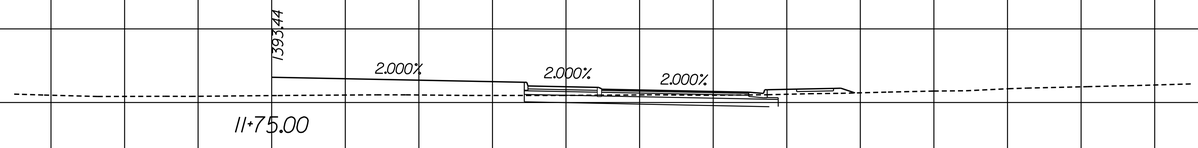
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	-	U000-115-R32	13

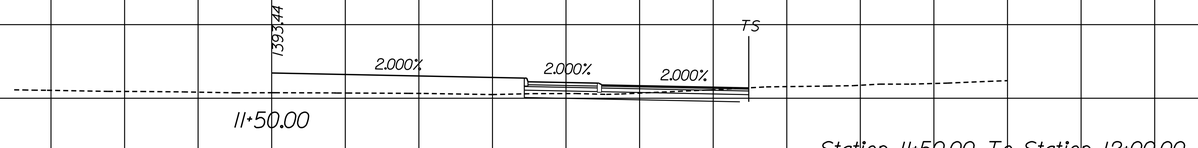
End Construction Roundabout



12+00.00



11+75.00



11+50.00

Station 11+50.00 To Station 12+00.00

150 100 50 0 50 100 150

PROJECT	SHEET NO.
U000-115-R32	13